National ITS Architecture
Logical Architecture – Volume III
Data Dictionary

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actual_border_wait_time

This data flow contains the actual time that vehicles have spent in the queue at a border crossing. This may the time period over which the data has been collected and include measures by vehicle type, lane, or type of lane.

actuator_commands

This data flow is used within the Provide Driver and Traveler Services function. It contains data produced by the four servo control processes within the function. This data is used to provide automatic control of the vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

steering_commands
+ lane_steering_commands
+ brake_commands
+ throttle_commands

admin_catalog_request

This data flow from the Manage Archive Data Administrator Interface contains the request for a catalog of data held by the source functions within ITS or terminators outside ITS. This data flow may contain specific identifiers such as the source and time frame to be included in the returned catalog.

admin_check_specification

This data flow from the Manage Archive Data Administrator Interface contains the specifications to be applied by the Get Archive Data function when checking the incoming data. Such checks could include error checking, checks for valid values, or check that the incoming data matches the data specified in the catalog.

admin_cleansing_parameters

This data flow from the Manage Archive Data Administrator Interface contains the parameters to be applied by the Get Archive Data function when cleansing the incoming data for personal or private information. Such parameters could specify whether data containing personal identifiers should be stripped of such data before importing or replaced with system generated unique identifiers.

admin_data_format_parameters

This data flow from the Manage Archive Data Administrator Interface contains the parameters and schema definition to be applied by the Get Archive Data function. This may also include parameters for performing methods such as sampling, summarization, aggregation, or transformations of the incoming data.

admin_data_product_request

This data flow from the Manage Archive Data Administrator Interface contains the request for data to be imported by the Get Archive Data function. This data flow may contain specific identifiers such as source, description, and time frame of the data to be imported from an ITS data source or a source outside of ITS.

admin_permission_update

This data flow within the Manage Archived Data function contains set the security levels of the data which may include the read write permissions on the data for a given user or class of users.

admin_quality_metrics

This data flow from the Manage Archive Data Administrator Interface contains the metrics to be applied by the Get Archive Data function when performing quality checks on the incoming data.

admin_schema_update

This data flow within the Manage Archived Data function contains instructions to maintain the schema of the archive database by establishing and maintaining definitions of the data concepts within the archive and definitions of the meta data to be included with the data.

admin_status_request

This data flow contains the requests for status from the Manage Archive function. This data flow supports the administration and management of the archive database. Included in this flow are requests for status, commands and parameters to set the frequency of updates and backups to the data.

administration_archive_schema

This data flow from the Manage Archive function contains the schema of the archive data, both the local archive and the other archives that are being coordinated This data flow consists of the following items each of which is defined in its own DDE:

local_schema
+ global_schema

administration_archive_status

This data flow from the Manage Archive function contains the status of the archive database including any notices concerning the quality or security of the data. This information will provide feedback to the administrator based on the inputs provided for formatting, cleansing, backup, security, and checking.

advanced_charge_transactions

This data flow is used within the Provide Electronic Payment Services function and contains data about advanced parking lot payment transactions as they take place for recording in the log of parking lot transactions. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ date
+ parking_lot_cost
+ stored_credit
+ time
+ vehicle_identity

advanced_charges

This data flow is used within the provide Electronic Payment Services function and is also sent as part of a data flow from the Manage transit function. It contains data to enable an advanced parking lot charge to be calculated and billed, and can be input by either a driver from a vehicle, or a traveler from on-board a transit vehicle or at the roadside, i.e. a transit stop. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ parking_lot_identity
+ parking_space_details
+ stored_credit
+ traveler_identity
+ vehicle_identity

advanced_charges_billing_needed

This data flow is used within the Provide Electronic Payment Services function to indicate that advanced payment for a parking lot charge is needed. It consists of the following data item which is defined in its own DDE:

confirmation_flag

advanced_charges_confirm

This data flow is used within the Provide Electronic Payment Services function to show that payment for advanced parking lot charges has been confirmed or not. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag +
credit_identity +
parking_lot_cost +
stored_credit

advanced_charges_needed

This data flow is used within the Provide Electronic Payment Services function to show that an advanced parking lot charge must be determined. It contains the following data items each of which is defined in its own DDE:

credit_identity
+ parking_space_details
+ stored_credit
+ vehicle_identity

advanced_charges_payment_list

This data store is used within the Provide Electronic Payment Services function to hold a list of drivers and travelers who have paid their parking lot charges in advance. It contains the following data items each of which is defined in its own DDE:

list_size
+ list_size {credit_identity
    + parking_lot_cost
    + parking_space_details
    + vehicle_identity}

advanced_fare_billing

This data flow is used within the Provide Electronic Payment Services function and contains a traveler identity, the associated credit identity and the value of a transit fare that is being paid for in advance. The traveler identity is used to associate this charge with the traveler so that information on the success or failure of the transaction can be returned to the correct requester. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ transit_fare
+ traveler_identity

advanced_fare_billing_needed

This data flow is used within the Provide Electronic Payment Services function to indicate that advanced payment for a transit fare (or fares) is needed. It consists of the following data item which is defined in its own DDE:

confirmation_flag

advanced_fare_details

This data flow is used within the Provide Electronic Payment Services function and contains details of the transit ride for which a driver wishes to make an advanced payment. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ transit_journey_date
+ transit_route_destination
+ transit_route_origin

advanced_fare_payment_list

This data flow is used within the Provide Electronic Payment Services function to hold a list of those drivers and travelers (including users of the transit system) who have paid their transit fares in advance, plus details of the fare and journey to which it applies. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{credit_identity
    + transit_route_origin
    + transit_route_destination
    + transit_journey_date
    + traveler_identity}

advanced_fare_transactions

This data flow is used within the Provide Electronic Payment Services function and contains data about advanced transit fare payment transactions as they take place for recording in the log of transit fare transactions. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ date
+ stored_credit
+ time
+ transit_fare
+ traveler_identity

advanced_fares_and_charges_request

This data flow is used within the Provide Electronic Payment Services function to transfer requests for advanced payments from the driver interface for subsequent processing. It consists of the following data items each of which is defined in its own DDE:

advanced_fare_details
+ advanced_parking_lot_charges

advanced_fares_and_charges_response

This data flow is used within the Provide Electronic Payment Services function and contains the result of the requested advanced transit fare and/or parking lot charge payment transaction from a driver. It consists of the following data item which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ parking_lot_cost
+ stored_credit
+ transit_fare

advanced_fares_confirm

This data flow is used within the Provide Electronic Payment Services function to show that payment for advanced transit fares has been confirmed or not. It consists of the following data item which is defined in its own DDE:

confirmation_flag

advanced_fares_needed

This data flow is used within the Provide Electronic Payment Services function to show that an advanced fare must be determined. It contains the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ transit_route_origin
+ transit_route_destination
+ transit_journey_date
+ traveler_identity

advanced_other_charges_confirm

This data flow is used within the Provide Electronic Payment Services function and shows whether or not an advanced parking lot payment transaction has been confirmed or not. It consists of the following data item which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ stored_credit
+ parking_lot_cost
+ vehicle_identity

advanced_other_charges_request
This data flow is used within the Provide Electronic Payment Services function to request that a parking lot charge be paid for in advance by either a driver who is paying a toll or a traveler (including a user of the transit system) who is paying a transit fare. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ parking_lot_identity
+ parking_space_details
+ stored_credit
+ vehicle_identity

advanced_other_fares_confirm
This data flow is used within the Provide Electronic Payment Services function to confirm the advanced payment of a transit fare by a traveler. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ stored_credit
+ transit_fare
+ traveler_identity

advanced_other_fares_request
This data flow is used within the Provide Electronic Payment Services function to request that a transit fare be paid in advance by a driver who is paying either a parking lot charge or a toll. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ transit_route_origin
+ transit_route_destination
+ transit_journey_date
+ traveler_identity

advanced_other_tolls_confirm
This data flow is used within the Provide Electronic Payment Services function to confirm the advanced payment of tolls by a driver. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ stored_credit
+ toll_cost
+ vehicle_identity

advanced_other_tolls_request
This data flow is used within the Provide Electronic Payment Services function to request that a toll be paid for in advance by either a driver who is paying a parking lot charge or a traveler who is paying a transit fare. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ toll_route_segments
+ vehicle_identity

advanced_parking_lot_billing
This data flow is used within the Provide Electronic Payment Services function and contains the value of the advanced parking lot charge to be paid for a particular vehicle and driver through the credit identity. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ parking_lot_cost
+ stored_credit
+ vehicle_identity

advanced_parking_lot_charges
This data flow is used within the Provide Electronic Payment Services function and contains data to enable an advanced parking lot charge to be calculated and billed. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ parking_lot_identity
+ parking_space_details
+ stored_credit
+ vehicle_identity

advanced_parking_lot_prices

This flow is used within the Provide Electronic Payment Service function to hold data about the prices to be charged for parking lot spaces, by time of day, day of week and vehicle type. It contains the following item which is defined in its own DDE:

parking_lot_prices

advanced_parking_payment_update

This flow is used within the Provide Electronic Payment Services function to update the list of drivers and travelers who have paid their parking lot charges in advance. It contains the following data items each of which is defined in its own DDE:

list_size
+ list_size{credit_identity
    + parking_lot_cost
    + parking_space_details
    + vehicle_identity}

advanced_toll_billing

This data flow is used within the Provide Electronic Payment Services function and contains the value of the advanced toll to be charged for a particular vehicle and driver through the vehicle identity. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ toll_cost
+ toll_route_segments
+ vehicle_identity

advanced_toll_billing_needed

This data flow is used within the Provide Electronic Payment Services function to indicate that advanced payment for a toll (or tolls) is needed. It consists of the following data item which is defined in its own DDE:

confirmation_flag

advanced_toll_needed

This data flow is used within the Provide Electronic Payment Services function to show that an advanced toll cost must be determined. It contains the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ toll_route_segments
+ vehicle_identity

advanced_toll_payment_list

This store is used within the Provide Electronic Payment Services function to hold a list of drivers and travelers who have paid their tolls in advance, the value of the payments, plus the toll segments and vehicles to which they apply. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{credit_identity
    + toll_cost
    + toll_route_segments
    + vehicle_identity}

advanced_toll_payment_update

This flow is used within the Provide Electronic Payment Services function to update the list of drivers and travelers who have paid their tolls in advance, the value of the payments, plus the toll segments and vehicles to which they apply. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{credit_identity
    + toll_cost
    + toll_route_segments
    + vehicle_identity}

advanced_toll_transactions

This data flow is used within the Provide Electronic Payment Services function and contains data about advanced toll transactions as they take place for recording in the log of toll transactions. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ cv_carrier_number
+ cv_vehicle_number
+ date
+ stored_credit
+ time
+ toll_cost
+ toll_plaza_identity
+ toll_route_segments
+ vehicle_identity

advanced_tolls
This data flow is used within the Provide Electronic Payment Services function and contains data to enable an advanced toll to be calculated and billed. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ toll_route_segments
+ vehicle_identity

advanced_tolls_and_charges_roadside_confirm
This data flow is used within the Provide Electronic Payment Services function and contains the result of the requested advanced payment transaction from a traveler at the roadside, i.e. a transit stop. It consists of the following data items each of which is defined in its own DDE:

advanced_charges_confirm
+ advanced_tolls_confirm
+ confirmation_flag

advanced_tolls_and_charges_roadside_request
This data flow is used by the Manage Transit function to transfer requests for advanced payments for toll and parking lot charges from the traveler (as a transit user) fare payment interface at the roadside, i.e., a transit stop, to the Provide Electronic Payment Services function for subsequent processing. It consists of the following data items each of which is defined in its own DDE:

advanced_charges
+ advanced_tolls

advanced_tolls_and_charges_vehicle_confirm
This data flow is used within the Provide Electronic Payment Services function and contains the result of the requested advanced payment transaction from a traveler in a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

advanced_charges_confirm
+ advanced_tolls_confirm
+ confirmation_flag

advanced_tolls_and_charges_vehicle_request
This data flow is used by the Manage Transit function to transfer requests for advanced payments for toll and parking lot charges from the traveler (as a transit user) fare payment interface in a transit vehicle to the Provide Electronic Payment Services function for subsequent processing. It consists of the following data items each of which is defined in its own DDE:

advanced_charges
+ advanced_tolls

advanced_tolls_and_fares_request
This data flow is used within the Provide Electronic Payment Services function to transfer requests for advanced payments from the driver parking lot charge payment interface for subsequent processing. It consists of the following data items each of which is defined in its own DDE:

advanced_fare_details
+ advanced_tolls

advanced_tolls_and_fares_response
This data flow is used within the Provide Electronic Payment Services function and contains the result of the requested advanced toll and/or transit fare payment transaction from a driver. It consists of the following data item which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ stored_credit
+ toll_cost
+ transit_fare

advanced_tolls_confirm

This data flow is used within the Provide Electronic Payment Services function to show that payment for an advanced toll has been confirmed or not. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ stored_credit
+ toll_cost

advanced_traveler_charges_confirm

This data flow is used within the Provide Electronic Payment Services function It contains data about an advanced parking lot charge transaction requested by a traveler and consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ parking_lot_cost
+ stored_credit
+ traveler_identity

advanced_traveler_charges_request

This data flow is used within the Provide Electronic Payment Services function to request that a parking lot charge be paid for in advance by a traveler who is planning a trip. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ parking_space_details
+ stored_credit
+ vehicle_identity

advanced_traveler_fares_confirm

This data flow is used within the Provide Electronic Payment Services function to show whether advanced fare payment by a traveler planning a trip has been refused or cleared. The traveler will be using facilities in the Provide Driver and Traveler Services function to generate the trip request. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ stored_credit
+ transit_fare
+ traveler_identity

advanced_traveler_fares_request

This data flow is used within the Provide Electronic Payment Services function to request that a transit fare be paid for in advance by a traveler who is planning a trip using facilities in the Provide Driver and Traveler Services function. It consists of the following items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ transit_route_origin
+ transit_route_destination
+ transit_journey_date
+ traveler_identity

advanced_traveler_tolls_confirm

This data flow is used within the Provide Electronic Payment Services function. It contains data about an advanced toll transaction requested by a traveler and consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ stored_credit
+ toll_cost
+ traveler_identity

advanced_traveler_tolls_request

This data flow is used within the Provide Electronic Payment Services function to request that a toll be paid for in advance by a traveler who is planning a trip. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ toll_route_segments
+ vehicle_identity

advisory_data_scope

This data flow is used within the Provide Driver and Traveler Services function to show the scope of the advisory data requested by the driver or traveler (including the user of the transit system) from a vehicle. The scope will define the types of data, such as: none, current traffic data, long term traffic data, predictive model data, planned events, prediction data, transit schedules, transit routes, current transit running data, yellow pages hotel data, yellow pages restaurant data, yellow pages theater data, or yellow pages services data.

advisory_display_type

This data flow is used within the Provide Driver and Traveler Services function and may include the following definitions of the various types of driver and traveler displays that are available in the vehicle: no display; travel and traffic advisory display, updated with vehicle location changes; enable roadside information display; disable roadside information display; enable enhanced vision display; disable enhanced vision display; select front enhanced vision display; select rear enhanced vision display; transit information; traffic information; other (yellow pages) services information.

agency_incident_response_procedures

This data flow coordinates standard response procedures between public safety agencies (e.g. police, fire and rescue, EMS, and towing) and other allied agencies that participate in an incident response.

air_services_costs

This data flow is contains details of the costs for a traveler's use of the services operated by airlines that may be suitable for inclusion in the response to a traveler's trip request. The data flow consists of the following data item which is defined in its own DDE:

cost

air_services_destination

This data flow is used within the Provide Driver and Traveler Services function. It contains the destination of the airline service(s) that are the closest fit with a traveler's proposed trip plan. This destination may be different to that provided in the multimodal services request as it will be a commercial airfield, rather than a town, or other geographic point. It may also not be the destination of the service operated by the airline as the traveler may be leaving at some intermediate point. The data flow consists of the following data item which is defined in its own DDE:

route_point

air_services_destination_arrival_time

This data flow is used within the Provide Driver and Traveler Services function. It contains the time at which a flight arrives the destination point for airline services in a traveler's trip plan. This destination may not be the actual final destination of the flight operated by the airline, because the traveler may be leaving at some intermediate point along its route. The service will be a close fit with a traveler's proposed trip plan. The data flow consists of the following data item which is defined in its own DDE:

time

air_services_details

This data flow is used within the Provide Driver and Traveler Services function. It contains details of the airline service(s) that have been found to be suitable for use by a traveler as part of a proposed trip. It consists of the following data items each of which is defined in its own DDE:

air_services_costs
+ air_services_routes
+ air_services_schedules
+ air_services_status

air_services_intermediate_arrival_time

This data flow is used within the Provide Driver and Traveler Services function. It contains the time at which a flight arrives at an intermediate point on the part of a traveler's route to be provided by an airline. These points are those at which the traveler has to change flights, or has a significant stop over time. There may be other intermediate points on the airline route, but they are ignored because the traveler is expected to do nothing other than remain on-board the flight. The airline route will be that which provides a service that is a close fit to the requirements of the traveler's proposed trip. The data flow consists of the following data item which is defined in its own DDE:

time

air_services_intermediate_depart_time

This data flow is used within the Provide Driver and Traveler Services function. It contains the time at which an airline service departs from an intermediate point on the part of a traveler's route to be provided by an airline. These points are those at which the traveler has to change flights, or has a significant stop over time. There may be other intermediate points on the airline route, but they are ignored because the traveler is expected to do nothing other than remain on-board the flight. The airline route will be that which provides the service that is a close fit to the requirements of the traveler's proposed trip. The data flow consists of the following data item which is defined in its own DDE:

time

air_services_intermediate_point

This data flow is used within the Provide Driver and Traveler Services function. It contains the location of an intermediate point on a route operated by an airline. They will all be the locations of commercial airfields at which the traveler will have to change flights, or where the flight schedule has a significant stop over time. All other stops on the flight schedule will ignored. The airline route will be that which provides the service that is a close fit to the requirements of the traveler's proposed trip. The data flow consists of the following data item which is defined in its own DDE:

route_point

air_services_origin

This data flow is used within the Provide Driver and Traveler Services function. It contains the origin of the airline service(s) that are the closest fit with a traveler's proposed trip plan. This origin may be different to that provided in the multimodal services request as it will be a commercial airfield, rather than a town, or other geographic point. It may also not be the origin of the service operated by the airline as the traveler may be joining it at some intermediate point. The data flow consists of the following data item which is defined in its own DDE:

route_point

air_services_origin_depart_time

This data flow is used within the Provide Driver and Traveler Services function. It contains the time at which a flight leaves the origin point for airline services in a traveler's trip plan. This origin may not be the actual origin of the flight operated by the airline, because the traveler may be joining at some intermediate point along its route. The service will be a close fit with a traveler's proposed trip plan. The data flow consists of the following data item which is defined in its own DDE:

time

air_services_route_details

This data flow is used within the Provide Driver and Traveler Services function. It contains details of an airline route that will suit a traveler's proposed trip and is associated with a cost and a schedule. The route may have intermediate points at which the services calls, and at which the traveler may have to change from one flight to another. There may be other intermediate points on the flight but these are of no concern to the traveler. The data flow consists of the following data items each of which is defined in its own DDE:

air_services_origin
+ air_services_intermediate_point
+ air_services_destination

air_services_routes

This data flow contains details of the routes served by airlines. These may be suitable for use by a traveler as part of a proposed trip. It consists of the following data item which is defined in its own DDE:

air_services_route_details

air_services_schedule_details

This data flow is used within the Provide Driver and Traveler Services function. It contains details of the departure and arrival times at places along an airline route that will suit a traveler's proposed trip and is associated with a cost and a route. The route may have places at which the services calls, and at which the traveler may have to change from one flight to another There may be other places at which the flight calls, but the traveler is expected to remain on-board the aircraft and therefore they are ignored. The data flow consists of the following data items each of which is defined in its own DDE:

air_services_origin_depart_time
+ air_services_intermediate_arrival_time
+ air_services_intermediate_depart_time
+ air_services_destination_arrival_time

air_services_schedules

This data flow contains details of the schedules of services on the routes operated by airlines which may be suitable for use by a traveler as part of a proposed trip. It consists of the following data item which is defined in its own DDE:

air_services_schedule_details

air_services_status

This data flow contains the status of nearby airports (open or closed, general flight delays, etc.).

alert_and_threats_for_maint_field_personnel

This data flow is used within the Manage Maintenance and Construction function to provide notification to field personnel of potential threats or a major emergency such as a natural or man-made disaster, civil emergency, or child abduction. It consists of the following data items each of which is defined in its own DDE:

list_size{list_size{threat_severity
+ threat_duration
+ geographical_area
+ detected_threat}
+ list_size{alert_type
+ alert_severity
+ alert_duration
+ geographical_area}}

alert_and_threats_for_maint_personnel

This data flow is used within the Manage Maintenance and Construction function to provide notification to center personnel of potential threats or a major emergency such as a natural or man-made disaster, civil emergency, or child abduction. It consists of the following data items each of which is defined in its own DDE:

list_size{list_size{threat_severity

+ threat_duration
+ geographical_area
+ detected_threat}
+ list_size{alert_type
+ alert_severity
+ alert_duration
+ geographical_area}}

alert_duration
This data flow gives the expected duration of an alert from its start time until the time at which it is expected that it will have no further ill effects. The data flow consists of the following data item which is defined in its own DDE:

duration

alert_notification_for_toll_operator
This data flow within the Process Electronic Payment function contains information about a wide-area alert that has been issued and should be passed on to the toll operators in the field. This information could include specific criteria for toll operators to be on the look out for as they perform their collection activities. It consists of the following data items each of which is defined in its own DDE:

alert_severity
+ alert_type

alert_notification_status_from_maint
This data flow contains information indicating the status of the alert from the maintenance and construction operations personnel including the information systems that are being used to provide the alert notification. It consists of the following data items each of which is defined in its own DDE:

alert_severity
+ alert_type

alert_notification_status_from_tolls
This data flow contains information indicating the status of the alert from the toll operators including the information systems that are being used to provide the alert notification. It consists of the following data items each of which is defined in its own DDE:

alert_severity
+ alert_type

alert_notification_status_from_traffic
This data flow contains information indicating the status of the alert from the traffic operations personnel including the information systems that are being used to provide the alert notification. It consists of the following data items each of which is defined in its own DDE:

alert_severity
+ alert_type

alert_notification_status_from_transit
This data flow contains information indicating the status of the alert from the transit systems operator including the information systems that are being used to provide the alert notification. It consists of the following data items each of which is defined in its own DDE:

alert_severity
+ alert_type

alert_notification_status_from_travelers
This data flow contains information indicating the status of the alert from the information service provider operator including the information systems that are being used to provide the alert notification. It consists of the following data items each of which is defined in its own DDE:

alert_severity
+ alert_type

alert_severity
This data flow defines the severity of an alert.

alert_traveler_information_parameters
This data contains parameters to be used to govern traveler information alerts (traffic congestion, transit service disruption, incidents, road weather, parking availability, etc.) to personal devices and in-vehicle units.

alert_type
This data flow identifies the type of alert.

alerts_and_advisories_for_incident_detection
This data flow is used to send details of generated alerts and advisories. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{alert_type
+ alert_severity
+ geographical_area
+ alert_duration}

alerts_and_advisories_for_threat_analysis

This data flow is sent from the Manage Emergency Services function and contains generated alerts and advisories to be analyzed for further threat analysis. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{alert_type
+ alert_severity
+ geographical_area
+ alert_duration}

analyze_archive_data_request

This data flow within the Manage Archived Data function contains the request forwarded from the archived data users system for data from the archive to be used for data analysis activities. This data flow includes user information to enable the Manage Archive function to authenticate the users eligibility to view data from the archive.

analyzed_env_and_weather_data

This data flow contains environmental and weather data/information that has undergone quality control and for which a source reliability assessment has been developed. The data includes environmental sensor data, environmental probe data, weather service information, surface transportation weather information and road condition information. It consists of the following data items each of which is defined in its own DDE:

env_and_weather_data
+ source_reliability_information

approach_warning

This data flow provides immediate data for HRI users as they approach an HRI (e.g. local broadcast via short range communications equipment). It is generated by the Report Alerts and Advisories process for use by the Report HRI Status on Approach process.

approaching_train_announcement

This data flow contains information about a specific train that is approaching a specific grade crossing and is used by the Advise and Protect Train Crews process to manage HRI traffic.

approaching_train_data

This data flow represents information derived by wayside equipment from on-board train equipment. This information is to alert the HRI that the train is approaching. This data is made available sufficiently early that a train can still be safely stopped if the HRI is unsafe.

train_alert
+ train_direction
+ train_id
+ train_dynamics

approved_corrective_plan

This data flow is used within the Manage Transit function and represents a plan of action to respond to a (relatively) long term transit schedule disruption. It consists of the following data items each of which is defined in its own DDE:

transit_route_corrections
+ transit_changes_in_stops
+ transit_changes_in_speed

archive_administration_data

This data flow from the Manage Archive function contains the status of the archive including reports on quality metrics of the data being archived, volume reports and other database statistics, and the schema of the archive data - both the local archive and the other archives that are being coordinated. This data flow consists of the following items each of which is defined in its own DDE:

administration_archive_status
+ administration_archive_schema

archive_administration_request

This data flow within the Manage Archived Data function contains commands and requests for status from the Manage Archive function. This data flow supports the administration and management of the archive database. Included in this flow are requests for status, commands and parameters to set the frequency of updates and backups to the data. This flow also includes instructions to maintain the schema of the database and set the security levels of the data. This data flow consists of the following items each of which is defined in its own DDE:

admin_status_request
+ admin_schema_update
+ admin_permission_update

archive_data

This data store within the Manage Archived Data function contains the collection of data imported into the archive function that has been formatted for the archive schema. This data store is comprised of the data, the meta data to describe the archived data in detail enough to improve the usefulness of the data over time, a catalog and schema of the data held within the archive, and a set of access permissions for the data held within the archive. This data flow contains the following items each of which is defined in its own DDE:

formatted_archive_data
+ formatted_archive_data_attributes
+ formatted_archive_catalog
+ archive_permissions

archive_data_for_analysis

This data flow within the Manage Archived Data function contains the response to the Analyze Archive function for data, or catalog data along with meta-data to support analysis activities such as data mining, data fusion, complex reports, aggregations, summaries, or recreating the original data.

archive_data_product

This data flow within Manage Archived Data function contains the response to a user systems request for data or a data catalog from the archive along with any meta data to adequately describe the data source and conditions.

archive_data_product_request

This data flow within the Manage Archived Data function contains the request forwarded from the archived data users system for data or a catalog of data from the archive. This data flow includes user information to enable the Manage Archive function to authenticate the users eligibility to view data from the archive.

archive_emissions_data

This data flow is used within the Manage Traffic function and contains data about acceptable and tolerable levels of emissions. It consists of the following data items each items each of which is defined in its own DDE

vehicle_emissions_sensor_data
+ vehicle_emissions_state_acceptance_criteria

archive_emissions_data_attributes

This data flow is used to provide meta data included with emissions data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

archive_emissions_reference_data

This data flow is used by processes within the Manage Traffic function and contains data about acceptable and tolerable emissions levels to be archived. It consists of the following data items each of which is defined in its own DDE:

emissions_vehicle_acceptance_conditions
+ emissions_vehicle_acceptance_data
+ state_contact_data

archive_emissions_reference_data_attributes

This data flow is used to provide meta data included with emissions reference data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

archive_emissions_state_data

This data flow is used within the Manage Traffic function to send data to the Archive Data function. It contains the current levels of emissions collected at the roadside from particular vehicle types. It consists of the following data items that provide the actual levels of various pollutants, each of which is defined in their own DDE:

list_size{vehicle_emissions_sensor_data}

archive_emissions_state_data_attributes

This data flow is used to provide meta data included with emissions state data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

authorization_to_use
+ collection_conditions
+ collection_equipment
+ data_aggregation
+ data_concept_identifier
+ data_reductions
+ data_revision
+ data_version
+ date_archived
+ date_created
+ date_published
+ equipment_status
+ error_handling
+ methods_applied
+ owner_entities
+ perishability_date
+ personal_identification_status
+ quality_control_attribute
+ record_size
+ security
+ standard_data_attribute
+ standard_message_attribute

archive_manage_emergency_vehicle_data

This data flow is used to transfer existing emergency vehicle data to a point in the National ITS Architecture that can archive it. This data flow consists of the following data item which is defined in its own DDE:

emergency_vehicle_status_data

archive_permissions

This data flow contains the set of permissions for the data held within the archive. Permissions include defining read, write, delete, modify privileges for individual users or classes of users. The data is maintained by the administrator for the archive.

archive_pollution_data

This data flow is used within the Manage Traffic function and contains data about acceptable and tolerable levels of atmospheric pollution. It consists of the following data items each items each of which is defined in its own DDE:

pollution_state_static_acceptance_criteria
+ pollution_sensor_data

archive_pollution_data_attributes

This data flow is used to provide meta data included with pollution data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

archive_pollution_reference_data

This data flow is used by processes within the Manage Traffic function and contains data about acceptable and tolerable pollution levels to be archived. It consists of the following data items each of which is defined in its own DDE:

pollution_acceptance_data
+ pollution_acceptance_times
+ pollution_tolerance_data
+ pollution_tolerance_times

archive_pollution_reference_data_attributes

This data flow is used to provide meta data included with pollution reference data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment

+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

archive_pollution_state_data

This data flow is used within the Manage Traffic function to send data to the Archive Data function. It contains the current levels of pollutants in the different parts of the geographic area covered by the function. It consists of the following data items that provide the actual levels of various pollutants, each of which is defined in their own DDE:

list_size{pollution_sensor_data}

archive_pollution_state_data_attributes

This data flow is used to provide meta data included with pollution state data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

archive_provide_emergency_service_allocation_data

This data flow is used to transfer existing emergency service allocation data to a point in the National ITS Architecture where it can be archived.

archive_request_confirmation

This data flow within the Manage Archived Data function is sent in response to a request from a user system to import user-defined data into the archive. This confirmation data flow contains the indication of whether or not the request can be satisfied and an identifier that will describe for the user system where the data will be kept within the archive.

area_air_quality_index

This data flow contains a code for the area wide air quality level.

arrival_time

This data element represents the projected arrival time of a train at a railroad grade crossing. This data flow consists of the following data item which is defined in its own DDE:

time

asset_archive_catalog

This data flow is used to provide the description of the data contained in the collection of transportation asset data from Asset Management that has been made available for the Manage Archive Function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g. time range of entries, number of entries; or sample data products.

asset_archive_catalog_request

This data flow from the Manage Archived Data function to Asset Management contains the request for a catalog of the data held by the terminator. The request for a catalog may include either or both the description of the types of data the archive is interested in or a time frame over which the requested information may be available.

asset_archive_data_request

This data flow from the Manage Archived Data function to Asset Management contains the request for the data to be archived. The request for data may include either or both the description of the data required or a time frame over which the requested information may be available.

asset_damage

This data flow contains information regarding damage to the transportation infrastructure - primarily non-ITS assets - such as bridges, roadways, or tunnels. This data may be collected from eyewitness reports, aerial surveillance, field reports, inspections, tests, and analyses.

asset_data

This data flow is sent by Asset Management and contains information that may be of interest to archive data user systems such as information describing transportation assets including pavements, bridges, and other infrastructure in the transportation network.

asset_data_attributes

This data flow is used to provide meta data included with asset management data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

asset_data_for_archive

This data flow is sent by Asset Management and contains information that may be of interest to archive data users systems along with the meta data that is necessary to describe the imported data to the Manage Archived Data function. This data flow contains the following items each of which is defined in its own DDE:

asset_data
+ asset_data_attributes

asset_restrictions_for_com_veh

This data flow is sent from the Manage Maintenance and Construction function to the Manage Commercial Vehicles function and contains information regarding restrictions on transportation asset usage based on infrastructure design, surveys, tests, or analyses. This could include height, width, weight, and special restrictions for bridges; both permanent restrictions, and temporary restrictions due to current maintenance and construction activities are included. The data flow consists of the following data item which is defined in its own DDE:

current_asset_restrictions

asset_restrictions_for_em_response

This data flow is sent from the Manage Maintenance and Construction function to the Manage Emergency Response function and contains information regarding restrictions on transportation asset usage based on infrastructure design, surveys, tests, or analyses. This could include height, width, weight, and special restrictions for bridges; both permanent restrictions, and temporary restrictions due to current maintenance and construction activities are included. This information can be used to anticipate incidents or routing emergency vehicles. The data flow consists of the following data item which is defined in its own DDE:

current_asset_restrictions

asset_restrictions_for_emerg

This data flow is sent from the Manage Maintenance and Construction function to the Manage Emergency Vehicles function and contains information regarding restrictions on transportation asset usage based on infrastructure design, surveys, tests, or analyses.

This could include height, width, weight, and special restrictions for bridges; both permanent restrictions, and temporary restrictions due to current maintenance and construction activities are included. This information can be used to anticipate incidents or routing emergency vehicles. The data flow consists of the following data item which is defined in its own DDE:

current_asset_restrictions

asset_restrictions_for_info_provider

This data flow is sent from the Manage Maintenance and Construction function and contains information regarding restrictions on transportation asset usage based on infrastructure design, surveys, tests, or analyses. This could include height, width, weight, and special restrictions for bridges; both permanent restrictions, and temporary restrictions due to current maintenance and construction activities are included. This information can be passed on to travelers or used in creating routes. The data flow consists of the following data item which is defined in its own DDE:

current_asset_restrictions

asset_restrictions_for_traffic

This data flow is sent from the Manage Maintenance and Construction function to the Manage Traffic function and contains information regarding restrictions on transportation asset usage based on infrastructure design, surveys, tests, or analyses. This could include height, width, weight, and special restrictions for bridges; both permanent restrictions, and temporary restrictions due to current maintenance and construction activities are included. This information can be used to anticipate incidents, etc. The data flow consists of the following data item which is defined in its own DDE:

current_asset_restrictions

asset_restrictions_for_transit

This data flow is sent from the Manage Maintenance and Construction function to the Manage Transit function and contains information regarding restrictions on transportation asset usage based on infrastructure design, surveys, tests, or analyses. This could include height, width, weight, and special restrictions for bridges; both permanent restrictions, and temporary restrictions due to current maintenance and construction activities are included. This information can be used to assist in supporting transit vehicle operations. The data flow consists of the following data item which is defined in its own DDE:

current_asset_restrictions

assignment_data

This data store contains the assignment details of a driver, commercial vehicle and freight equipment for a specific trip. The store consists of the following data items each of which is defined in its own DDE:

cv_driver_number
+ cv_route_number
+ cv_vehicle_number
+ freight_equipment_number

assignment_mismatch_warning

This data flow contains the information identifying the mismatch between the planned driver/ commercial vehicle/freight equipment assignment and actual observed identities. This data flow consists of the following items each of which is defined in its own DDE:

cv_vehicle_number
+ cv_driver_number
+ driver_identity
+ freight_equipment_id
+ freight_equipment_number
+ vehicle_identity
+ time
+ date

ats_advisory

This data flow contains data relative to the status of an HRI and is intended to be forwarded to the wayside railroad owned and maintained facilities such as Automatic Train Stop systems.

ats_alert

This data flow represents an HRI conclusion that ATS capabilities at the wayside should be alerted to the HRI conditions.

ats_status

This data flow contains data relative to the status of railroad owned and maintained ATS equipment at the wayside and is used by the Provide ATS Alerts process to warn of possible ATS failures or anomalies.

ats_warning_notification

This data flow is information based on railroad owned and maintained wayside train control systems (e.g. ATS, PTS etc.) and is used by the Advise and Protect Train Crews process to assure that the ATS interface (if implemented) is currently operable.

audio_control_data

This data flow contains control parameters for an audio system.

authorization_code

This data flow is used to show the result of a financial transaction involving payment using credit facilities. The code is provided if it was successful.

authorization_to_use

This data flow describes the restrictions on the use of the data, such as a restriction on a class of users or a restriction on export of the data.

auto_treat_equip_status

This data flow provides the operational status (state of the device, configuration, and fault data) of automated roadway treatment systems, such as anti-icing systems, etc. and the adjoining dynamic message sign (DMS) equipment that alerts drivers to these conditions. It includes status collected both from the field and center. It consists of the following data items each of which is defined in its own DDE:

auto_treat_equip_status_for_m_and_c_from_center
+ auto_treat_equip_status_for_m_and_c

auto_treat_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of an automated roadway treatment system, such as anti-icing systems, etc. and the adjoining dynamic message sign (DMS) equipment that alerts drivers to these conditions to the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can assess the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

auto_treat_equip_status_for_m_and_c_from_center

This data flow provides the operational status (state of the device, configuration, and fault data) of automated roadway treatment systems, such as anti-icing systems, etc. and the adjoining dynamic message sign (DMS) equipment that alerts drivers to these conditions to the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can assess the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ device_identity
+ roadside_device_status}

auto_treatment_activation_data

This data flow is used within the Manage Maintenance and Construction function and contains data about the conditions and occurrences under which the remotely controlled automated field devices along the roadway that treat the road surface (anti-icing, de-icing, etc.) were activated.

auto_treatment_device_control

This data flow contains control information to remotely control automated field devices along the roadway that treat the road surface (anti-icing, de-icing, etc.).

auto_treatment_system_control

This data flow contains control information to remotely control automated field devices along the roadway that treat the road surface (anti-icing, de-icing, etc.), the environmental sensors that indicate when activation of those devices is required, and data to be displayed on dynamic message signs (DMS) to inform the driver or traveler. The data flow consists of the following data items each of which is defined in its own DDE:

auto_treatment_device_control
+ env_sensor_control_by_roadway_treatment_device
+ dms_auto_treat_data_from_maint

auto_treatment_system_status

This data flow contains the operational status of automated treatment devices located at the roadway including records of equipment activation. By monitoring this data flow, the receiving process can track the occurrences of automated treatment. It consists of the following data item which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ auto_treatment_activation_data}

auto_treatment_system_status_for_archive

This data flow contains the operational status of automated treatment devices located at the roadway including records of equipment activation. This flow is used by the Managed Archived Data function for archival of the occurrences of automated treatment. It consists of the following data item which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity

+ auto_treatment_activation_data}

auto_treatment_system_status_for_archive_attributes

This data flow is used to provide meta data included with maintenance and construction automated treatment system data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

auto_treatment_system_status_for_personnel

This data flow contains the operational status of automated treatment devices located at the roadway including records of equipment activation. By monitoring this data flow, the center personnel can track the occurrences of automated treatment. It consists of the following data item which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ auto_treatment_activation_data}

automated_lane_changing_control_data

This data flow contains data to define the basic operational parameters of the automated lane changing function. These parameters might include what traffic conditions shall activate the automated lane changing, the location and timing of the lane change, the speed at which the lane change takes place, and any platooning that will be performed during the lane change operation.

autonomous_traveler_guidance_accepted

This data flow is used within the Provide Driver and Traveler Services function and contains the acceptance by the traveler of the previously provided route for autonomous guidance. Acceptance must be provided before guidance can begin.

autonomous_traveler_guidance_data

This data flow is used within the Provide Driver and Traveler Services function and contains the data for providing autonomous guidance to a traveler using a personal device. It consists of the following data items each of which is defined in its own DDE:

route
+ route_cost

autonomous_traveler_guidance_data_request

This data flow is used within the Provide Driver and Traveler Services function and requests autonomous guidance for a traveler using a personal device. The data flow consists of the following data items each of which is defined in its own DDE:

origin
+ destination
+ desired_arrival_time
+ modes
+ preferred_routes
+ preferred_alternate_routes
+ preferred_ridesharing_options
+ preferred_route_segments
+ preferred_transit_options
+ constraint_on_acceptable_travel_time
+ constraint_on_number_of_mode_changes
+ constraint_on_number_of_transfers

+ constraint_on_eta_change
+ constraint_on_special_needs

autonomous_vehicle_guidance_accepted
This data flow is used within the Provide Driver and Traveler Services function and contains the acceptance by the driver of the previously provided route for autonomous guidance. Acceptance must be provided before guidance can begin.

autonomous_vehicle_guidance_data
This data flow is used within the Provide Driver and Traveler Services function and contains the data for providing autonomous guidance to a driver in a vehicle. It consists of the following data items each of which is defined in its own DDE:

route
+ route_cost

autonomous_vehicle_guidance_data_request
This data flow is used within the Provide Driver and Traveler Services function and requests on-line dynamic or autonomous guidance for the vehicle in which the driver is traveling.

origin
+ destination
+ desired_arrival_time
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_special_needs
+ constraint_on_load_classification
+ constraint_on_avo_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type

available_transit_operators
This data flow is contains a listing of Transit operators that are available for use. The data flow consists of the following data item which is defined in its own DDE:

transit_vehicle_operator_availability

available_transit_vehicles
This data flow is contains a listing of Transit vehicles that are available for use. The data flow consists of the following data item which is defined in its own DDE:

transit_vehicle_availability

avo_accel_decel_profile
This data flow is used within the Provide Vehicle Monitoring and Control function. It contains a vehicle's acceleration and deceleration characteristics profile for use in the automatic control of the vehicle, whether or not it is part of a platoon. The data flow consists of the following data item which is defined in its own DDE:

vehicle_accel_decel_data

avo_check_identity
This data flow is used within the Provide Vehicle Monitoring and Control function and contains the identity and location of an automatic vehicle operation check-in facility. It consists of the following data items each of which is defined in its own DDE:

location_identity
+ unit_number

avo_check_parameters
This data flow is used within the Provide Vehicle Monitoring and Control function and contains the parameters against which a vehicle can be checked for suitability for operating on dedicated automated vehicle lanes. These parameters will relate to vehicle conditions such as braking ability, maximum rate of acceleration, maximum sustainable speed, range with current fuel load, lane control accuracy, etc.

avo_check_response
This data flow is used within the Provide Vehicle Monitoring and Control function and contains the response to the checking of data from on-board a vehicle to see if it is suitable for operating on automated vehicle lanes. The data flow consists of the following data items each of which is defined in its own DDE:

avo_control_data_update
+ confirmation_flag

avo_checking_data

This data flow is used within the Provide Vehicle Monitoring and Control function and contains the results of a check of a vehicle's on-board data to see if it is suitable for operating on automatic vehicle operations lanes. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag

avo_checking_details

This data flow is used in the Provide Vehicle Monitoring and Control function and contains updates to the counts of successful and failed check-ins to the automatic vehicle operations lanes from roadside locations. It consists of the following data items each of which is defined in its own DDE:

avo_failed_checks_count
+ avo_successful_checks_count

avo_checking_records

This data flow is used within the Provide Vehicle Monitoring and Control function and contains records of all vehicles that tried to check in for operation on automatic lanes. The number of check-in successes and failures are stored for a series of time periods. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{avo_check_identity
    + avo_failed_checks_count
    + avo_successful_checks_count}

avo_control_data

This data flow is sent from the Manage Traffic function to the Provide Vehicle Monitoring and Control function. It contains data defining parameters to be used by vehicles participating in platoon following and running in dedicated controlled lanes, which will override any already loaded into the vehicles. It consists of the following items of data each of which is defined in its own DDE:

avo_demand_accel_decel_profile

avo_control_data_changes

This data flow is used within the Provide Vehicle Monitoring and Control function to send data from the management facility to the automatic vehicle operations check-in facilities. It contains data defining parameters to be used by vehicles participating in platoon following and running in the controlled lanes, which will override any already loaded into the vehicles. The data flow consists of the following items of data each of which is defined in its own DDE:

avo_demand_accel_decel_profile
+ avo_demand_headway

avo_control_data_update

This data flow is used within the Provide Vehicle Monitoring and Control function. It contains data defining parameters to be used by vehicles participating in platoon following and running in automated vehicle operations (AVO) controlled lanes. This data is provided by the Manage Demand facility in the Manage Traffic function and will override any already loaded into the vehicles. The data flow consists of the following items of data each of which is defined in its own DDE:

avo_demand_accel_decel_profile
+ avo_demand_headway

avo_control_information

This data flow is used within the Provide Vehicle Monitoring and Control function and contains the parameters against which a vehicle can be checked for suitability for operating on dedicated automated vehicle lanes, plus control data for operating in that type of lane. The data flow consists of the following items each of which is defined in its own DDE:

avo_check_parameters
+ avo_control_data

avo_data_input

This data flow is used within the Provide Vehicle Control and Monitoring function and contains data obtained from on-board vehicle sensors that identifies the type of automatic vehicle operations lane in which the vehicle is traveling, together with the lane identity. The types of automated lanes include: entry lane, running lane, exit lane, exit lane ahead, transfer lane, transfer lane ahead. Entry and running lane will be accompanied by the lane identity. Exit lane ahead and transfer lane ahead will be accompanied by the identity of the automated lane to which the exit lane leads, plus the direction (left or right). Transfer lane is used for a particular type of exit lane and will be accompanied by the identity of the automated lane being joined. Exit lane is used for a lane taking vehicles to a lane on which automated vehicle operation is not supported.

avo_demand_accel_decel_profile

This data flow is used within the Provide Vehicle Monitoring and Control function. It contains a vehicle's acceleration and deceleration characteristics profile for use in the automatic control of the vehicle when operating on automatic lanes, whether or not it is part of a platoon. The data flow consists of the following data item which is defined in its own DDE:

vehicle_accel_decel_data

avo_demand_headway

This data flow contains the headway to be used by a vehicle over its entire speed range while in automatic control mode and traveling on automated lanes. The data flow is used to override any on-board vehicle data. The data flow consists of the following data item which is defined in its own DDE:

vehicle_headway_data

avo_device_status

This data flow provides the operational status (state of the device, configuration, and fault data) of automated vehicle operations devices for the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

avo_checking_details
+ roadside_device_status
+ device_identity
+ station_id

avo_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of automated vehicle operations devices for the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can assess the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

avo_checking_details
+ roadside_device_status
+ device_identity
+ station_id

avo_failed_checks_count

This data flow is used within the Provide Vehicle Monitoring and Control function and contains a count of the number of vehicles that failed to pass through the automatic vehicle operation check-in procedure at a particular point over the time period of one hour.

avo_headway

This data flow is used within the Provide Vehicle Monitoring and Control function. It contains the headway to be used by a vehicle over its entire speed range while in automatic control mode and traveling along automated lanes, whether or not it is part of a platoon. This data is loaded into the vehicle during its manufacture and can be overridden by data from other sources. The data flow consists of the following data item which is defined in its own DDE:

vehicle_headway_data

avo_lane_use_data

This data flow is used within the Provide Vehicle Monitoring and Control function and contains records of the use of all automatic vehicle operations lanes. This is to enable a picture to be complied of the automated vehicle lane use starting from the check-in point. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{route_segment_identity
    + avo_vehicle_count}

avo_operational_data

This data flow contains details of the number of vehicles that have been checked into the automatic vehicle operations system, plus details about the use of automated lanes during the previous time period, e.g., one (1) hour. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{avo_checking_records
    + avo_lane_use_data
    + date
    + time}

avo_operational_data_attributes

This data flow is used to provide meta data included with automated vehicle operations data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities

+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

avo_route

This data flow is sent by the Provide Driver and Traveler Services function to the Provide Vehicle Control and Monitoring function. It is a special form of route for vehicles only using automatic vehicle operations lanes and contains a list of the route segments containing these lanes that will form the route. This means that the modes data in the route selection criteria sent to the Provide Driver and Traveler Services function was set to include automated lanes where possible. The data flow consists of the following items each of which is defined in its own DDE:

route_segment_number{route_segment}

avo_route_data

This data flow is used within the Provide Vehicle Monitoring and Control function and contains a list of the route segments that will be used by a vehicle. These route segments will be those that contain dedicated automatic vehicle operations lanes, and will be used by the vehicle on its controlled route. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{route_segment_identity}

avo_route_request

This data flow is sent from the Provide Vehicle Control and Monitoring function to the Provide Driver and Traveler Services function to request a vehicle route that can only be used by vehicles equipped for automatic vehicle operations. Data items such as constraints and preferences that are within the data item shown below will be set up for automated lane operation only. Other data such as vehicle location and vehicle identity being added by the receiving process. It consists of the following data items each of which is defined in its own DDE:

origin
+ destination
+ departure_time
+ desired_arrival_time
+ modes
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ preferred_weather_conditions
+ constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_special_needs
+ constraint_on_load_classification
+ constraint_on_avo_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type

avo_status

This data flow contains the status of the vehicle in its operation on automatic vehicle operations lanes which may include signals such as not in automated mode, trying to join, running, leaving at next exit, leaving, automated lane access denied, or transferring lanes. The actual warning messages, e.g., please take control of vehicle, when the vehicle is leaving automated lane operation, output to the driver will be generated according to the state of this data flow.

avo_successful_checks_count

This data flow contains a count of the number of vehicles that successfully passed through the automatic vehicle operation check-in procedure at a particular point.

avo_usage_data

This data store is used within the Provide Vehicle Monitoring and Control function and contains records of all vehicles that tried to check in for operation on automatic lanes. The number of check-in successes and failures are stored for a series of time periods. For successful check-ins, the resulting route data is also stored so that a picture can be complied of the automatic vehicle lane use starting from the check-in point. The data flow consists of the following data items each of which is defined in its own DDE:

avo_checking_records
+ avo_lane_use_data

avo_vehicle_checking_parameters
This data store is used within the Provide Vehicle Monitoring and Control function. It contains parameters against which a vehicle's condition can be checked to see if it is suitable for operating on automatic vehicle operations (AVO) lanes, plus the vehicle control parameters (speed, headway, etc.) used by vehicles in those lanes. The data flow consists of the following items each of which is defined in its own DDE:

avo_check_parameters
+ avo_control_data

avo_vehicle_condition
This data flow is used within the Provide Vehicle Monitoring and Control function. It contains data processed from on-board vehicle sensors that show the vehicle's current operating condition. This data is used to determine its suitability for operating on automatic vehicle operations lanes.

avo_vehicle_count
This data flow contains a count of the number of vehicles that have used an automatic vehicle operations lane based route segment during the previous time period.

avo_vehicle_data
This data flow is used within the Provide Vehicle Monitoring and Control function. It contains data input by a vehicle that wishes to participate in automatic vehicle lane operation. The data consists of the following items each of which is defined in its own DDE:

avo_data_input

B

background_strategy
This data flow is used within the Manage Traffic function and comprises information about the traffic control strategies to be used if no overrides are in effect, i.e. there are no incidents, emergency vehicle routes, and no changes due to demand management or traffic system operator activity. Any of these may cause a special control strategy to be introduced and supersede the background strategy. The background strategy is specified for different times of the day, days of the week, and days of the year. Those for which a day of the year is specified will take preference over those for which a day of the week is specified, which in turn will take preference over those for which no date or day is specified. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{strategy_start_time
    + strategy_end_time
    + strategy_day
    + strategy_date
    + selected_strategy_type
    + selected_strategy_data}

bad_charge_payment_list
This data flow is used within the Provide Electronic Payment Services function. It contains a list of credit identities that have been provided by the financial institution because they have been involved in one or more bad (failed) parking lot charge payment transactions.

list_size
+ list_size{credit_identity}

bad_fare_payment_list
This flow is used within the Provide Electronic Payment Services function. It contains a list of credit identities that have been provided by the financial institution because they have been involved in one or more bad (failed) transit fare payment transactions.

list_size
+ list_size{credit_identity}

bad_tag_list_request
This data flow is sent from the Manage Transit fare billing on vehicle facility to the Provide Electronic Payment Services function. It requests that a new copy of the list of bad transit tags be provided for use in fare transaction processing on-board a transit vehicle. The data flow consists of the following data item which is defined in its own DDE:

transit_vehicle_identity

bad_tag_list_update
This data flow is sent from the Provide Electronic Payment Services function to the Manage Transit function. It contains a list of current traveler tags that have been found to be bad. This means that a fare payment transaction in which they were involved has failed, or the tag has been invalidated by the financial institution to which it belongs. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ list_size
+ list_size{credit_identity}

bad_toll_payment_list

This store is used within the Provide Electronic Payment Services function and contains a list of credit identities that have been provided by the financial institution because they have been involved in one or more bad (failed) toll transactions. The store consists of the following data items each of which is defined in its own DDE. Note that the carrier data will not be applicable for credit identities that do not relate to commercial vehicle operations.

list_size
+ list_size{credit_identity + cv_carrier_number}

bad_transit_collected_fare_payment

This data flow is used within the Manage Transit function and contains details from the data store about the contacts for an enforcement agency and the method by which it should be contacted. This is the agency to which data should be sent about each transit fare payment violation when it is received from the Provide Electronic Payment Services function. This data flow also contains data about a violator of the transit fare collection processes. This data will contain a digitized video image of the traveler trying to violate the fare collection process, plus information about the transit fare and the vehicle or roadside location from which payment was being attempted. The data flow contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details
+ fare_violation_information

bad_transit_fare_payment_data

This data flow is sent from the Manage Emergency Services function to the Manage Transit function and contains details about the contacts for an enforcement agency. This is the agency to which data should be sent about each transit fare payment violation when it is received from the Provide Electronic Payment Services function. This data flow also contains data about a violator of the transit fare collection processes. This data will contain a digitized video image of the traveler trying to violate the fare collection process, plus information about the transit fare and the vehicle or roadside location from which payment was being attempted. The data flow contains the following data items each of which is defined in its own DDE:

bad_transit_collected_fare_payment
+ bad_transit_vehicle_fare_payment
+ bad_transit_roadside_fare_payment

bad_transit_roadside_fare_payment

This data flow is used within the Manage Transit function and contains details from the data store about the contacts for an enforcement agency and the method by which it should be contacted. This is the agency to which data should be sent about each transit fare payment violation when it is received from the Provide Electronic Payment Services function. This data flow is also used by the Manage Transit function to send data about a violator of the transit fare collection processes at the roadside, i.e. a transit stop, to the Manage Emergency Services function. This data flow will contain a digitized video image of the traveler who is trying to violate the fare collection process at the roadside. It is assumed that this digitized data will include other data such as date and time, plus camera identity from which the roadside (transit stop) location can be determined. The data flow contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details
+ fare_collection_roadside_violation_information

bad_transit_tag_data

This data store is used within the Manage Transit function in the processing of transit fare payments on-board a transit vehicle. It contains details of bad traveler tags that have been detected as a result of fare processing as travelers have been using the transit network. The data is provided by processes in the Provide Electronic Payment Services function on request from the transit vehicle. The data store consists of the following items each of which is defined in its own DDE:

list_size
+ list_size{credit_identity}

bad_transit_vehicle_fare_payment

This data flow is used within the Manage Transit function and contains details from the data store about the contacts for an enforcement agency and the method by which it should be contacted. This is the agency to which data should be sent about each transit fare payment violation when it is received from the Provide Electronic Payment Services function. This data flow is also used by the Manage Transit function to send data about a violator of the transit fare collection processes on-board the vehicle to the Manage Emergency Services function. This data flow will contain a digitized video image of the traveler who is trying to violate the fare collection process on-board a vehicle. It is assumed that this digitized data will include other data such as date and time, plus camera identity from which the transit vehicle identity can be determined. The data flow contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details
+ fare_collection_vehicle_violation_information

barrier_control_request
This data flow requests specialized control device activation at a grade crossing implemented with positive vehicle barriers.

barrier_device_control
This data flow controls the state of barrier control devices (e.g. four quadrant gates) and associated warning devices at a local HRI.

barrier_device_control_state
This data flow contains the state of barrier and associated warning devices at a grade crossing.

barrier_info
This data flow gives warning of activation of the automated barrier systems, such as gates, indicating the condition that warranted the device's activation, or that the barriers are opened or closed.

barrier_safeguard_activation_request_from_operator
This data flow is used within the Manage Emergency Services function to request activation of a barrier system (gates and other automated systems for roadway entry control) or safeguard system (e.g. blast shields and other automated equipment used to mitigate the impact of incidents on transportation infrastructure). It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ barrier_system_control_request
+ safeguard_system_control_request}

barrier_safeguard_system_status_to_operator
This data flow is used within the Manage Emergency Services function to report to the emergency personnel the status of barrier systems (gates and other automated systems for roadway entry control) and safeguard systems (e.g. blast shields and other automated equipment used to mitigate the impact of incidents on transportation infrastructure). By monitoring this data flow, the receiving process can monitor the health and current operational status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

barrier_system_activation_request_for_detours
This data flow is used within the Manage Traffic function to request activation of a barrier system for traffic detours. These barrier systems include gates, barriers, and other automated or remotely controlled systems used to manage entry to roadways. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ barrier_system_control_request}

barrier_system_activation_request_from_emerg
This data flow is sent from the Manage Emergency Services function to the Manage Traffic function to request activation of a barrier system to support emergency response. These barrier systems include gates, barriers, and other automated or remotely controlled systems used to manage entry to roadways. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ barrier_system_control_request}

barrier_system_activation_request_from_operator
This data flow is used within the Manage Traffic function to request activation of a barrier system by traffic operations personnel. These barrier systems include gates, barriers, and other automated or remotely controlled systems used to manage entry to roadways. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ barrier_system_control_request}

barrier_system_control
This data flow provides configuration and control commands for barrier systems, such as gates, barriers, and other automated or remotely controlled systems used to manage entry to roadways. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ barrier_system_control_request}

barrier_system_control_from_emerg_personnel

This data flow is used within the Manage Emergency Vehicles function to request activation of a barrier system by emergency personnel. These barrier systems include gates, barriers, and other automated or remotely controlled systems used to manage entry to roadways. It consists of the following data items each of which is defined in its own DDE:

barrier_system_control_request
+ device_identity
+ station_id

barrier_system_control_from_emerg_veh

This data flow provides configuration and control commands for barrier systems, such as gates, barriers, and other automated or remotely controlled systems used to manage entry to roadways. It consists of the following data items each of which is defined in its own DDE:

barrier_system_control_request
+ device_identity
+ station_id

barrier_system_control_from_m_and_c

This data flow provides configuration and control commands for barrier systems, such as gates, barriers, and other automated or remotely controlled systems used to manage entry to roadways. It consists of the following data items each of which is defined in its own DDE:

barrier_system_control_request
+ device_identity
+ station_id

barrier_system_control_from_mcv

This data flow provides configuration and control commands for barrier systems, such as gates, barriers, and other automated or remotely controlled systems used to manage entry to roadways. It consists of the following data items each of which is defined in its own DDE:

barrier_system_control_request
+ device_identity
+ station_id

barrier_system_control_request

This data flow is a request for activation or deactivation of a particular gate or barrier, and any other supportive control and configuration data.

barrier_system_data_for_archive

This data flow contains the operational status of barrier systems, such as gates, barriers, and other automated or remotely controlled systems used to manage entry to roadways. This flow is used to archive occurrences of barrier activation. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

barrier_system_device_status

This data flow is used within the Manage Traffic function to report the operational status (state of the device, configuration, and fault data) of automated barrier systems, such as gates. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

barrier_system_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of automated barrier systems, such as gates, to the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can assess the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

barrier_system_status

This data flow is used within the Manage Traffic function to report the status of a barrier system, such as gates, barriers, and other automated or remotely controlled systems used to manage entry to roadways. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

barrier_system_status_for_detours

This data flow is used within the Manage Traffic function to report to another process the operational status of a barrier system, such as gates, barriers, and other automated or remotely controlled systems used to manage entry to roadways. By monitoring this data flow and thereby knowing which gates have been activated, the receiving process can better coordinate traffic detours. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

barrier_system_status_to_emerg

This data flow is sent from the Manage Traffic function to the Manage Emergency Services function to report to another process the operational status of a barrier system, such as gates, barriers, and other automated or remotely controlled systems used to manage entry to roadways. By monitoring this data flow and thereby knowing which systems have been activated, the receiving process can better coordinate an emergency response. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

barrier_system_status_to_emerg_personnel

This data flow is used within the Manage Emergency Vehicles function to report to the emergency personnel the status of a barrier system, such as gates, barriers, and other automated or remotely controlled systems used to manage entry to roadways. It consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity
+ station_id

barrier_system_status_to_emerg_veh

This data flow is used to report the status of a barrier system, such as gates, barriers, and other automated or remotely controlled systems used to manage entry to roadways. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity
+ station_id

barrier_system_status_to_m_and_c

This data flow provides a report to the Manage Maintenance and Construction function of the status of automated barrier systems, such as gates. By monitoring this data flow, the receiving process can assess the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity
+ station_id

barrier_system_status_to_mcv

This data flow provides a report to the Manage Maintenance and Construction function of the status of automated barrier systems, such as gates. By monitoring this data flow, the receiving process can assess the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity
+ station_id

barrier_system_status_to_operator

This data flow is used within the Manage Traffic function to report to the traffic operations personnel the status of a barrier system, such as gates, barriers, and other automated or remotely controlled systems used to manage entry to roadways. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

basic_mcv_measures_for_maint_sched

This data flow contains the operational status of various systems on the maintenance and construction vehicle, including brake wear, engine temperature, mileage, tire wear, belt wear, engine and brake system status, and safety system status to enable vehicle maintenance scheduling. It consists of the following data item which is defined in its own DDE:

vehicle_id_for_mcv
+ vehicle_system_status

basic_mcv_measures_for_mcv_operator
This data flow contains the operational status of various systems on the maintenance and construction vehicle, including brake wear, engine temperature, mileage, tire wear, belt wear, engine and brake system status, and safety system status for presentation to the vehicle operator. It consists of the following data item which is defined in its own DDE:

vehicle_system_status

bike_route_information
This data flow contains details contains details for bike route information (available trails, trails under construction, etc.) available to bicycle travelers.

billing_for_charges_needed
This data flow indicates that billing for a parking lot charge is required. An advanced parking lot charge payment request can also be indicated. The data flow contains the following data items each of which is defined in its own DDE:

advanced_charges_billing_needed
+ parking_lot_vehicle_payment_data
+ parking_lot_cost
+ vehicle_identity

billing_for_fares_needed
This data flow indicates that billing for a transit fare is required. An advanced toll payment request can be indicated. The data flow consists of the following data items each of which is defined in its own DDE:

advanced_fare_billing_needed
+ credit_identity
+ stored_credit
+ transit_fare
+ transit_route_number
+ transit_route_segment_number
+ transit_route_use_time
+ traveler_category
+ traveler_identity

billing_for_tolls_needed
This data flow indicates that billing for a toll is required. An advanced toll payment request can be indicated. The data flow contains the following data items each of which is defined in its own DDE:

advanced_toll_billing_needed
+ cv_carrier_number
+ cv_vehicle_number
+ toll_cost
+ toll_route_segments
+ toll_vehicle_payment_data
+ vehicle_identity

border_alert
This data flow contains traveler alerts that report regionally relevant border closures, delays, border incidents, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions including the traveler's location, search radius, drive route, or timeframe, as well as configurable alert thresholds (e.g., border wait times, queue lengths, severity of the alert).

border_archive_catalog
This data flow is used to provide the description of the data contained in the collection of border crossing and trade related data from the Border Inspection Administration that has been made available for the Manage Archive Function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g. time range of entries, number of entries; or sample data products.

border_archive_catalog_request
This data flow from the Manage Archived Data function to the Border Inspection Administration contains the request for a catalog of the data held by the terminator. The request for a catalog may include either or both the description of the types of data the archive is interested in or a timeframe over which the requested information may be available.

border_archive_data_request
This data flow from the Manage Archived Data function to the Border Inspection Administration contains the request for the data held by the terminator. The request for data may include either or both the description of the data required or a timeframe over which the requested information may be available.

border_crossing_request
This request contains necessary enrollment information for commercial vehicle international border crossings. This flow will

typically provide information about the carrier or freight forwarder, the vehicle, the driver and the current trip including a cargo declaration.

border_crossing_traffic_status

This data flow contains information about the status (e.g. open/closed or responding to an incident) as well as the current, actual, and predicted wait times at a border crossing as provided by the border inspection systems. It consists of the following items each of which is defined in its own DDE:

border_traffic_incident
+ current_border_wait_time
+ actual_border_wait_time
+ predicted_border_wait_time

border_data

This data flow is sent by the Border Inspection Administration and contains border crossing and trade related information that may be of interest to archive data users systems.

border_data_attributes

This data flow is used to provide meta data included with border data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

border_data_for_alerts

This data flow contains traveler alerts that report regionally relevant border closures, delays, border incidents, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions.

border_data_for_archive

This data flow is sent by the Border Inspection Administration and contains border crossing and trade related information that may be of interest to archive data users systems along with the meta data that is necessary to describe the imported data to the Manage Archived Data function. This data flow contains the following items each of which is defined in its own DDE:

border_data
+ border_data_attributes

border_data_for_broadcast

This data flow contains information concerning border crossing facilities needed to support the broadcast traveler information application. This data includes status information including border wait times, queue lengths, closures, incidents, and lane assignments.

border_data_for_centers

This data flow is used within the Provide Driver and Traveler Services function to provide border crossing information for transmission to other operational centers. This data includes status information including border wait times, queue lengths, closures, incidents, and lane assignments.

border_data_for_interactive

This data flow contains information, concerning border crossing facilities, processed for traveler consumption, needed to support the interactive traveler information application. This data includes status information including border wait times, queue lengths, closures, incidents, and lane assignments.

border_data_request_for_alerts
This data flow is used to request specific border closure/delay information based on traveler alert subscriptions.

border_database
This data store is used within the Manage Commercial Vehicles function and contains a list of information necessary to make a border clearance assessment. This information includes flags to identify any transportation clearance problems. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{cvo_declaration_info
    + cvo_domestic_transportation_info_from_trade
    + cvo_border_clearance_info
    + cvo_border_status_from_other_cvas}

border_traffic_incident
This data flow from Border Inspection Systems contains information about an incident that may impact traffic at a border crossing.

brake_commands
This data flow contains data showing any changes required to the current brake setting in order to increase or decrease the headway between the vehicle and the one it is following.

broadcast_parameters_data
This data store is used within the Provide Driver and Traveler Services function to hold parameters used to filter traffic and transit data for the wide area broadcast of traffic and transit data. These parameters can be viewed by the ISP Operator and updated if required. The data is being managed by a process for exchange with the ISP operator.

broadcast_traveler_information_parameters
This data contains parameters to be used to govern broadcast of traveler information (traffic, transit, incident, parking information, etc.) to kiosks, personal devices, and in-vehicle units.

bypass_violation
This data flow provides a CVO Inspector with information about a commercial vehicle that has failed to pull-in to a check facility when requested. This data will include the identity and type of the vehicle trying to bypass the station.

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calculated_incident_clearance_time
This data flow contains the calculated incident clearance time based on predictive algorithms.

calculated_incident_response_time
This data flow contains the calculated incident response time based on predictive algorithms.

calculated_incident_times
This data flow contains the calculated incident response and clearance times based on predictive algorithms. It contains the following data items each of which is defined in its own DDE:

calculated_incident_response_time
+ calculated_incident_clearance_time

call_back_information
This data flow is sent from the Provide Driver Personal Security function to the Provide Emergency Service Allocation function. This data flow allows travelers involved in an incident to reestablish and continue communications with an emergency management system after initial contact has been made and ended. This could be something similar to the driver's mobile phone number.

care_facility_status_for_isp
This data flow contains information regarding the current status of the care facility. It includes information regarding if the facility is accepting new arrivals, staff on call, waiting times, type of care currently available, specialized services (trauma, burn units), etc.

cargo_data
This data flow contains sensor input from which the following can be determined: cargo_type - solid, liquid, powder, flammable liquid, livestock, etc., cargo_hazmat - details of the HAZMAT designation (if any) for the cargo, cargo_weight - the actual weight of the cargo including its packaging, i.e. what weight the vehicle is actually carrying, cargo_packaging - the type of container in which the cargo is held, e.g. closed ISO container, tank, open container, refrigerated container, etc.

cargo_data_request
This data flow is used within the Provide Vehicle Monitoring and Control function. It contains a request for data about a vehicle's cargo including any damage report to be sent back in reply.

cargo_safety_status
This data flow data from Freight Equipment from which the current condition of the vehicle's cargo can be determined.

carrier_identity

This data flow is used within the Manage Commercial Vehicles function. It contains the identity of the carrier to whom the commercial vehicle belongs. Where the vehicle is operated by the driver, it will be the same as the driver's identity.

carrier_participation_details

This data flow is used within the Manage Commercial Vehicles function and describes a motor carrier's participation in commercial vehicle operations programs, e.g. Federal Motor Carrier Safety Administration (FMCSA) Enterprise Notification System (FENS), Wireless Roadside Inspection (WRI). Includes the name(s) of the programs and the carriers status in the program (e.g. active, inactive).

center_control_of_on_board_work_zone_devices

This data flow contains control parameters sent from the maintenance and construction center personnel for control of work zone devices that are on a maintenance and construction vehicle. The devices controlled include closed circuit TV, dynamic message signs, highway advisory radio intrusion detection devices, and intrusion alert devices. These parameters may cover things such as device configuration or device reset. For the cctv the control flow also includes pan, tilt, and zoom plus other picture controls.

center_traveler_information_parameters

This data contains parameters to be used to govern broadcast of traveler information (traffic, transit, incident, parking information, etc.) to other operational centers.

cf_admin_data

This data flow is used within the Manage Commercial Vehicles function to provide information concering administrative and enforcement of commercial vehicle operations to the fleet manager.

cf_driver_instructions

This data store is used within the Manage Commercial Vehicle function. It stores details of driver routes and the cargo that is to be picked up and dropped off at the origin, destination, and any intermediate points. The store consists of the following data items each of which is defined in its own DDE:

cv_driver_number
+ cf_driver_load_details
+ cf_driver_route

cf_driver_instructions_request

This data flow is used within the Manage Commercial Vehicles function and contains a request from the commercial vehicle fleet manager for output of the driver route instructions for a particular route and driver combination. It consists of the following data items each of which is defined in its own DDE:

cv_driver_number
+ cv_route_number

cf_driver_load_data

This data flow is used within the Manage Commercial Vehicles function and contains the cargo to be dropped off and/or picked up on a particular route by a particular driver. It consists of the following data items each of which is defined in its own DDE:

cf_driver_load_details
+ cv_driver_number
+ cv_route_number

cf_driver_load_details

This data flow is used within the Manage Commercial Vehicle function and contains details of the cargo to be picked up and/or dropped off along a commercial vehicle route with which this data is associated. The information about the cargo is for use by the commercial vehicle driver and is provided through input from the Commercial Fleet Manager.

cf_driver_log_update

This data flow is used to download an update of a driver's hours of service log from the central repository maintained by the fleet operations function. This allows a driver to have a complete set of data when queried by roadside or administrative facilities or when a driver switches vehicles. This data flow consists of the following item which is defined in its own DDE:

cv_log_data

cf_driver_logs_for_admin

This data flow is used within the Manage Commercial Vehicles function to send a collection of commercial vehicle driver logs from a commercial fleet operations and management facility. It contains detailed log information showing hours in service. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{cv_log_data}

cf_driver_route

This data flow is used within the Manage Commercial Vehicle function and contains details of the route to be followed by a commercial vehicle driver. The route has been prepared by processes within the function as a result of input from the commercial vehicle fleet manager. The data flow consists of the following data items each of which is defined in its own DDE:

cv_route_number
+ cv_route_data

cf_driver_route_instructions
This data flow is used within the Manage Commercial Vehicles function and contains the driver route and loading instructions related to a particular route and driver for output to the commercial vehicle driver. It consists of the following data items each of which is defined in its own DDE:

cf_driver_route
+ cf_driver_load_details

cf_driver_route_instructions_output
This data flow is used within the Manage Commercial Vehicles function and contains the current contents of the store of driver route and loading instructions for output to the commercial vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

cv_driver_number
+ cf_driver_load_details
+ cv_route_number
+ cv_route_data

cf_driver_route_instructions_request
This data flow is used within the Manage Commercial Vehicles function and contains a request from the commercial vehicle driver for output of the driver route instructions. It consists of the following data items each of which is defined in its own DDE:

cv_driver_number
+ cv_route_number

cf_enforcement_trigger_areas
This data flow is used within the Manage Commercial Vehicles function and defines the wireless roadside inspection (WRI) trigger areas for a commercial vehicle enforcement activity, including locations, times, and items of focus (vehicle or cargo types, permit classifications, etc.) to provide the information to enrolled carriers.

cf_enforcement_trigger_notification
This data flow is used within the Manage Commercial Vehicles function to inform carriers (commercial fleet operators) that wireless roadside inspection (WRI) safety data message collection has been activated.

cf_enrollment_information
This data flow is used within the Manage Commercial Vehicles function and contains the data for enrollment on a particular route produced from data supplied by the commercial fleet manager. It contains the following data items each of which is defined in its own DDE:

cv_route_number
+ cv_taxes_and_duties
+ cv_route_data
+ route_type
+ cv_border_enrollments
+ cv_special_vehicle_enrollments

cf_enrollment_payment_confirmation
This data flow is used within the Manage Commercial Vehicles function to confirm that a payment of the taxes and duties for the enrollment of a particular commercial vehicle cargo, weight and type on a particular route from the commercial fleet manager has been accepted. It consists of the following data items each of which is defined in its own DDE:

cv_route_number
+ cv_account_number
+ cv_amount_billed

cf_enrollment_request
This data flow is used within the Manage Commercial Vehicles function and contains the data needed to obtain enrollment information for a particular commercial vehicle cargo, type and weight on a particular route as provided by the commercial fleet manager. It consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_route_data
+ cv_route_number
+ cv_trip_classification_data
+ cv_trip_identity
+ route_type
+ border_crossing_request
+ special_vehicle_application

cf_fleet_ops_for_cv_admin
This data flow from the Manage Commercial Vehicle Fleet Operations process to the Administer Commercial Vehicles process

contains data in response to request from CV administrators along with requests for information produced by the administrative processes. This flow consists of the following items each of which is defined in its own DDE:

cf_tax_data
+ cf_enrollment_request
+ cvo_audit_data
+ vehicle_permit_request
+ cf_safety_data
+ cf_driver_logs_for_admin

cf_hazmat_request
This data flow is sent from the Manage Emergency Services function to the Manage Commercial Vehicles function and contains a request for information about hazardous materials that are being or about to be carried by commercial vehicles.

cf_hazmat_route_information
This data flow is sent from the Manage Commercial Vehicles function to the Manage Emergency Services function and contains information about the route about to be used or planned for a commercial vehicle that will carry hazardous materials. This information may cause the Emergency Services to raise an incident for all or part of the vehicle's route. The data flow consists of the following data items each of which is define in its own DDE:

cv_route_number
+ cv_route_data

cf_hazmat_vehicle_information
This data flow is sent from the Manage Commercial Vehicles function to the Manage Emergency Services function and contains information about hazardous materials that are on-board the vehicle and details of the vehicle itself. The data flow consists of the following data items each of which is defined in its own DDE:

hazmat_load_data
+ hazmat_vehicle_data

cf_incident_alert
This data flow contains information about potential security incidents involving commercial vehicles. The data flow consists of the following data items each of which is defined in its own DDE:

assignment_mismatch_warning
+ cv_route_monitoring_status
+ cvo_security_alarm

cf_incident_response
This data flow contains a fleet manager's response to a commercial vehicle security incident.

cf_inspection_data
This data flow is used within the Manage Commercial Vehicle function. It provides a record of the results of commercial vehicle safety inspections from the commercial vehicle fleet management functions to the commercial vehicle on-board facility.

cf_manager_activity_report
This data flow is used within the Manage Commercial Vehicle Fleet function. It contains a commercial vehicle activity report that has been previously requested by the commercial vehicle fleet manager. The data flow consists of the following data item which is defined in its own DDE:

cf_retained_activity_report_data

cf_manager_activity_report_request
This data flow is used within the Manage Commercial Vehicle Fleet function. It contains a request for the output of a commercial vehicle activity report from the store of retained data. This report will be for a particular combination of carrier, driver and vehicle, and for all (or a particular) set of commercial vehicle roadside checkstation facilities. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_roadside_activity_report_frequency
+ list_size
+ list_size{cv_roadside_facility_identity}

cf_manager_credit_identity
This data flow is sent from the Administer Commercial Vehicle function to the Provide Electronic Payments Services function and contains the credit identity being used by a commercial vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

credit_identity

cf_manager_enrollment_information
This data flow is used within the Manage Commercial Vehicles function and contains data about the taxes and duties required for a commercial vehicle to be enrolled for a particular route as provided by the commercial vehicle fleet manager. It consists of

the following data items each of which is defined in its own DDE:

cv_route_number
+ cv_taxes_and_duties

cf_manager_enrollment_payment_confirmation
This data flow is used within the Manage Commercial Vehicles function and contains the confirmation that the payment for the enrollment of a particular commercial vehicle cargo, weight and type on a particular route has been made. It consists of the following data items each of which is defined in its own DDE:

cf_manager_credit_identity
+ confirmation_flag
+ cv_route_number
+ cv_account_number
+ cv_amount_billed

cf_manager_enrollment_payment_request
This data flow is used within the Manage Commercial Vehicles function and contains data required to enable payment for enrollment of a commercial vehicle for the use of a particular route as provided by the commercial vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

cf_manager_credit_identity
+ cv_route_number

cf_manager_enrollment_request
This data flow is used within the Manage Commercial Vehicles function. It contains data required for the enrollment of a commercial vehicle on a particular route as provided by a commercial vehicle fleet manager. The data flow consists of the following data items each of which is defined in its own DDE:

cv_cargo_class
+ cv_route_number
+ cv_trip_identity
+ cv_vehicle_class
+ cv_weight_class

cf_manager_freight_route_information
This data flow provides a commercial vehicle fleet manager the routing information for freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

cv_route_data
+ cv_route_number
+ cv_trip_identity
+ freight_cargo_data
+ freight_equipment_number

cf_manager_instructions
This data flow contains information from a commercial vehicle fleet manager requesting on-board data or defining the route monitoring parameters for a commercial vehicle. The data flow consists of the following data item which is defined in its own DDE:

cf_request_vehicle_data
+ cf_manager_route_monitoring_parameters

cf_manager_route_data
This data flow is used within the Manage Commercial Vehicle function and contains data about a vehicle route requested by a commercial vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

cv_route_data
+ route_type
+ cv_route_number

cf_manager_route_monitoring_parameters
This data flow contains parameters against which a commercial vehicle route is monitored. The parameters setup acceptable route deviation limits, which can be influenced by the type of vehicle (i.e. HAZMAT) and its current location (i.e. urban vs. rural). It consists of the following data item which is defined in its own DDE:

route_monitoring_parameters

cf_manager_route_request
This data flow is used within the Manage Commercial Vehicles function by the commercial vehicle fleet manager to request a commercial vehicle route. It consists of the following data items each of which is defined in its own DDE:

origin
+ destination
+ departure_time

+ desired_arrival_time
+ modes
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ preferred_weather_conditions
+ constraint_on_acceptable_travel_time
+ constraint_on_load_classification
+ constraint_on_avo_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type
+ route_type

cf_manager_route_status

This data flow provides a commercial vehicle fleet manager in-transit location information for their commercial vehicles. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ vehicle_location_for_cv

cf_manager_storage_request

This data flow is used within the Manage Commercial Vehicles function to manage the store of routes used by the commercial vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

cv_storage_action_flag
+ cv_route_number

cf_manager_vehicle_monitoring_parameters

This data flow contains parameters against which a commercial vehicle route is monitored. The parameters setup acceptable route deviation limits, which can be influenced by the type of vehicle, e.g., HAZMAT, and its current location, i.e., urban vs. rural. It consists of the following data item which is defined in its own DDE:

route_monitoring_parameters

cf_mgr_booking_request

This data flow contains booking information for a freight manager, which includes the type of freight, pick-up and drop-off locations, company contact information and freight equipment identifier. The data flow consists of the following data items each of which is defined in its own DDE:

freight_booking_information

cf_mgr_booking_response

This data flow contains the freight manager's response to a freight booking request. It may contain a confirmation number or a request for additional information.

cf_on_board_driver_log

This data flow is used to provide the Manage Commercial Vehicle Fleet Operations facility with the driver log maintained by on-board systems including the driver's hours of service. The data flow consists of the following data item which is defined in its own DDE:

cv_log_data

cf_on_board_vehicle_data

This data flow is used within the Manage Commercial Vehicle function and contains data collected on-board a commercial vehicle output of which has been requested by the commercial vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

cv_on_board_data
+ cv_general_output_message

cf_operations_data_for_vehicles

This flow sends data from the Manage Commercial Vehicle Fleet Operations function to the Provide Commercial Vehicle Data Collection function. It consists of the following items each of which is defined in its own DDE:

cf_driver_log_update
+ cf_inspection_data
+ cf_manager_route_monitoring_parameters
+ cf_trigger_area
+ cf_trigger_area_notification
+ cv_disable
+ cv_driver_assignment
+ cvo_general_message
+ cvo_on_board_vehicle_data_request

+ cvo_trip_log_data_request
+ cvo_vehicle_route

cf_periodic_activity_report

This data flow is used within the Manage Commercial Vehicles function. It consists of the data from the commercial vehicle roadside checkstation facility logs from which a report on activities will be issued. This data flow will have been produced as a result of a request from a commercial vehicle fleet manager for periodic reports. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{cv_roadside_facility_identity
    + cv_roadside_periodic_activity_data}

cf_request_vehicle_data

This data flow is used within the Manage Commercial Vehicles function. It contains a request for output of the data that has been collected from on-board a commercial vehicle for output to the commercial vehicle fleet manager.

cf_retained_activity_report_data

This data flow is used within the Manage Commercial Vehicles function. It contains reports from the commercial vehicle roadside checkstation and border crossing facilities about the activities of vehicles in the fleet.

list_size
+ list_size{cv_roadside_facility_identity
    + cv_retained_roadside_activity_data}

cf_retained_data

This data store is used within the Manage Commercial Vehicle Fleet function. It contains details of the tag data used by vehicles in the fleet, and reports from the commercial vehicle roadside checkstation facilities about their activities. The data store consists of the following data items each of which is defined in its own DDE:

cf_retained_activity_report_data
+ cf_retained_tag_initialization_data

cf_retained_tag_initialization_data

This data flow is used within the Manage Commercial Vehicles function. It contains details of the tag data used by vehicles in the fleet and is for use in future manager activities such as enrollment. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{cf_tag_initialization_data}

cf_retrieved_vehicle_data

This data store is used within the Manage Commercial Vehicles function. It contains the data that has been collected from on-board a commercial vehicle and is available for subsequent output to the commercial vehicle fleet manager. The data consists of the following data items each of which is defined in its own DDE:

cv_on_board_data
+ cv_general_input_message

cf_roadside_activity_report

This data flow is used within the Manage Commercial Vehicles function. It contains data from the commercial vehicle roadside checkstation facility logs from which a report on activities will be issued. This data flow will have been produced as a result of a specific request from a commercial vehicle fleet manager and consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{cv_roadside_facility_identity
    + cv_roadside_single_activity_data}

cf_route

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Commercial Vehicles function. It contains details of a dynamic route provided for a commercial vehicle the request for which originated with the commercial vehicle fleet manager. The data flow consists of the following data items each of which is defined in its own DDE:

cv_route_data
+ cv_route_number

cf_route_details

This data store is used within the Manage Commercial Vehicle function to hold data about commercial vehicle routes used by the commercial fleet manager. It consists of the following data items each of which is stored in its own DDE:

cv_route_number
+ cv_taxes_and_duties
+ cv_route_data

+ route_type

cf_route_request

This data flow is sent from the Manage Commercial Vehicles function to the Provide Driver and Traveler Services function. It is used to request the preparation of a dynamic route for a commercial vehicle and originates with the commercial vehicle fleet manager. The data flow consists of the following items each of which is defined in its own DDE:

constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_load_classification
+ constraint_on_avo_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type
+ cv_route_number
+ destination
+ departure_time
+ desired_arrival_time
+ modes
+ origin
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ preferred_weather_conditions

cf_safety_data

This data flow is used within the Manage Commercial Vehicles function to send safety data concerning a fleet operator's vehicles. It contains the following data items each of which is defined in its own DDE:

list_size
+ list_size{cv_credentials
+ cv_credentials_details
+ cv_driver_number
+ cv_driver_credentials
+ cv_driver_identity_characteristic_key
+ cv_driver_license_citations
+ cv_fuel_purchase_data
+ cv_identity_details
+ cv_inspection_data
+ cv_inspection_activities_data
+ cv_log_data
+ cv_not_pulled_in
+ cv_repairs_and_service_records
+ cv_safety_systems_diagnostics_results
+ cv_vehicle_log
+ freight_equipment_id
+ vehicle_location_for_cv
+ cv_disable}

cf_static_route_data

This data flow is used within the Manage Commercial Vehicles function. It contains the data for a static based route provided as a result of data provided by the commercial vehicle fleet manager.

cf_static_route_request

This data flow is used within the Manage Commercial Vehicles function. It contains the data from which a static route can be determined for a commercial vehicle and is supplied by the commercial fleet manager. It contains the following data items each of which is defined in its own DDE:

constraint_on_acceptable_travel_time
+ constraint_on_avo_lanes
+ constraint_on_eta_change
+ constraint_on_interstate
+ constraint_on_load_classification
+ constraint_on_urban
+ constraint_on_vehicle_type
+ destination
+ departure_time
+ desired_arrival_time
+ modes
+ origin
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ preferred_weather_conditions

cf_tag_data

This data flow is used within the Manage Commercial Vehicles function. It contains the output of the data currently being held by a commercial vehicle tag. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_trip_identity

cf_tag_data_store_output

This data flow is used within the Manage Commercial Vehicles function. It contains the output of the data currently being held by a type two commercial vehicle tag as previously requested by the commercial vehicle fleet manager. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_trip_identity

cf_tag_data_store_request

This data flow is used within the Manage Commercial Vehicles function. It contains a request for the current on-board commercial vehicle tag data to be sent to the process that provides the interface with the commercial vehicle fleet manager. This data flow is sent in response to a request by the manager for the output of the current tag data.

cf_tag_data_store_write

This data flow is used within the Manage Commercial Vehicles function. It contains on-board commercial vehicle tag data that is loaded by the commercial vehicle fleet manager and is used by other processes in the function. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_trip_identity
+ tag_identity

cf_tag_initialization_data

This data flow is used within the Manage Commercial Vehicle function. It contains a request for the initialization of the specified commercial vehicle tag with its on-board data. The data flow consists of the following data items each of which is defined in its own DDE:

tag_identity
+ cv_credentials_details
+ cv_trip_identity

cf_tax_data

This data flow is used within the Manage Commercial Vehicles function. It contains tax data and audit filings not related to specific credentials application and is generated as a result of input from the commercial vehicle fleet manager.

cf_trigger_area

This data flow is used within the Manage Commercial Vehicles function to provide the information to on-board systems to define the wireless roadside inspection (WRI) trigger areas for a commercial vehicle enforcement activity, including locations, times, and items of focus (vehicle or cargo types, permit classifications, etc.).

cf_trigger_area_notification

This data flow is used within the Manage Commercial Vehicles function to inform the fleet's commercial vehicle drivers that wireless roadside inspection (WRI) safety data message collection has been activated.

cf_vehicle_data

This data flow is used within the Manage Commercial Vehicles function. It contains the data that has been collected from on-board a commercial vehicle for output to the commercial vehicle fleet manager. The data consists of the following data items each of which is defined in its own DDE:

cv_on_board_data
+ cv_general_input_message
+ cv_driver_alert_response

charge_payment_violator_data

This data flow is used within the Provide Electronic Payment Services function and contains data about a parking lot payment transaction that was attempted but did not work. It consists of the data items shown below, each of which is defined in its own DDE. For each particular set of data some of the data items may be blank depending on the reason(s) for which the transaction did not work.

credit_identity
+ vehicle_identity
+ parking_lot_cost

climatic_scale_surface_trans_weather_forecasts

This data flow contains forecasts of surface transportation related weather trends and weather related events for time horizons and spatial range beyond those of synoptic scale forecasts.

climatic_scale_weather_forecasts
This data flow contains forecasts of atmospheric weather trends and weather related events for time horizons and spatial range beyond those of synoptic scale forecasts.

close_hri
This data flow is used by the Control Vehicle Traffic at Active HRI process to conditionally open or positively close an HRI to vehicular traffic.

closure_event_data
This data flow contains data to be used by traffic management to coordinate its overall operations with the HRI closures.

collected_incident_data
This data flow is used within the Manage Emergency Services function. It contains information for operators about incidents such as transit incidents, weather, silent alarms or mayday, events, commercial vehicle operations incidents. The data flow consists of the following data items each of which is defined in its own DDE

incident_and_event_data
+ incident_cvo_data
+ incident_surveillance_data
+ incident_sensor_data
+ threat_detected

collected_roadside_data
This data flow is contains the roadside collected by the Manage Roadside Data Collection function. It includes the data as received from the roadside along with meta data describing any processing that was performed on the collected data. This data flow is made up of the following items each of which is defined in its own DDE:

roadside_archive_catalog
+ roadside_data_for_archive
+ collected_roadside_data_attributes

collected_roadside_data_attributes
This data flow is used to provide meta data included with the collected roadside data for release to the archive. Items of meta data may include attributes that describe any methods related to aggregation or quality control that was applied to the data as it was collected. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

collected_roadside_data_status
This data flow is sent from the Get Archive Data function to the Manage Roadside Data Collection function. It is the status returned when data collected from roadside devices is sent to the Manage Archived Data function.

collection_administration_request
This data flow from the Manage Archive Data Administrator Interface function contains the request for status from the Manage Roadside Data Collection function. This data flow may also include the parameters needed to control the collection process.

collection_administration_status
This data flow from the Manage Roadside Data Collection function contains status and report information concerning the collection of data from roadside devices. This data flow is sent in response to request from the Manage Archive Data Administrator Interface function.

collection_conditions
This data flow describes the conditions under which the data was collected and/or sampled.

collection_equipment
This data flow describes the equipment used to collect the data. This may include a machine type or model or that it was manually collected or produced as a report of another ITS system.

collision_data
This data flow is used within the Provide Vehicle Control and Monitoring function. It contains information about a vehicle's state with reference to itself and any objects (other vehicles) that may be near by. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_motion_data
+ vehicle_attitude_data
+ vehicle_proximity_data

commercial_vehicle_permit_information
This data flow contains information for a commercial vehicle permit for overweight, oversize, or dangerous goods shipment.

confirm_advanced_charges_payment
This data flow is used within the Provide Electronic Payment Services function to confirm that advanced payment for parking lot charges have been made. This may have originated as a request from a traveler making pre-trip planning, as an advanced charges payment from a driver at a toll plaza or parking lot, or from a traveler in the transit network, i.e. on a transit vehicle or at a transit stop. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ parking_lot_cost
+ stored_credit
+ traveler_identity

confirm_advanced_fares_payment
This data flow is used within the Provide Electronic Payment Services function to confirm that advanced payment for a transit fare has been made. This may have originated as a request from a traveler making pre-trip planning, or as an advanced fare payment from a driver at a toll plaza or parking lot. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ stored_credit
+ transit_fare
+ traveler_identity

confirm_advanced_tolls_payment
This data flow is used within the Provide Electronic Payment Services function to confirm that advanced payment for a toll has been made. This may have originated as a request from a traveler making pre-trip planning, as an advanced toll payment from a driver at a toll plaza or parking lot, or from a traveler in the transit network, i.e. on a transit vehicle or at a transit stop. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ stored_credit
+ toll_cost
+ traveler_identity

confirm_roadside_fare_payment
This data flow is sent from the Provide Electronic Payment Services function to the Manage transit function to confirm that transaction processing of the payment of a transit fare from the roadside, i.e. a transit stop, has been completed. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ transit_roadside_fare_collection_identity

confirm_vehicle_fare_payment
This data flow is sent from the Provide Electronic Payment Services function to the Manage Transit function to confirm that transaction processing of the payment of a single transit fare (interactive operation) or of a group of fares (batch mode) from on-board the vehicle has been completed. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ traveler_vehicle_tag_identity
+ transit_vehicle_identity

confirmation_flag
This data flow is used within various ITS functions to indicate the success or failure of a request or transaction.

connection_change_request
The data flow contains a request to provide a change to transit schedule to support connection protection.

connection_change_request_for_other_transit
The data flow contains a request to another transit management function to provide a change to transit schedule to support connection protection.

constraint_on_acceptable_travel_time
This data flow is used within the Provide Driver and Traveler Services function and contains the maximum total travel time which the traveler or driver will allow for the selected route.

constraint_on_avo_lanes
This data flow is used within the Provide Driver and Traveler Services function and contains a flag which if set means that where possible use route segments that are automatic vehicle operations lanes.

constraint_on_eta_change
This data flow is used within the Provide Driver and Traveler Services function. It contains the value by which the estimated time of arrival (eta) at the destination must change for a new route to be automatically sent to the vehicle, or used for autonomous guidance with long journey and queue times being obtained from a central source.

constraint_on_interstate
This data flow is used within the Provide Driver and Traveler Services function and contains a flag which if set means, where possible, use interstate freeways except for when access is required to particular places, e.g. origin, destination, way points along a route.

constraint_on_load_classification
This data flow contains a three character code that specifies the load type. This is principally aimed at hazardous material (HAZMAT) type loads that may require special routing restrictions. The most hazardous type id code being used if more than one hazardous material being carried on a single vehicle.

constraint_on_number_of_mode_changes
This data flow contains the maximum number of changes between different modes of transport which the traveler or driver wishes to see used in the planned trip.

constraint_on_number_of_transfers
This data flow is used within the Provide Driver and Traveler Services function and contains the maximum number of mode changes that a traveler or driver will allow when a multimodal route is being specified.

constraint_on_special_needs
This data flow contains a code that covers physical and/or mental disabilities which may affect the choice of mode, route, etc., e.g. blind and will be accompanied, blind with a guide dog, deaf, mute, uses crutches, wheelchair bound, etc.

constraint_on_urban
This data flow is used within the Provide Driver and Traveler Services function and contains a flag which if set means avoid all urban roads except for when they are needed for access.

constraint_on_vehicle_type
This data flow contains a code that specifies that the route must be suitable for a particular type or types of vehicle. If left blank then routes suitable for all types of vehicle will be chosen so that for example, routes prohibiting commercial vehicles will be avoided. When vehicle types are specified, then the route will be suitable for that type and will if possible use segments from which other types are prohibited.

constraints
This data flow is part of the data that enables a route involving automatic vehicle operations lanes to be selected. It contains the constraints being placed on the choice of route and which will override any preferences that are also specified. Unless a default value is specifically defined, a value giving the least severe requirement will be used. Some parameters will have to be supplied by the traveler or driver (or provided by a process as a default value) before the route selection process can proceed. The data flow consists of the following items each of which is defined in its own DDE:

constraint_on_acceptable_travel_time
+ constraint_on_number_of_mode_changes
+ constraint_on_number_of_transfers
+ constraint_on_eta_change
+ constraint_on_special_needs
+ constraint_on_load_classification
+ constraint_on_avo_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type

control_data_for_highways
This data flow is used within the Manage Traffic function and contains indicator and lane control signal data. It consists of the following data item which is defined in its own DDE:

indicator_highway_requested_state

control_data_for_roads

This data flow contains the control data for indicator data operating at the roadside on roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

indicator_control_data_for_roads

control_data_from_manage_incidents

This data flow is used by manage incidents to request that a control function be implemented on a freeway or roadway. The data flow consists of the following data items which are defined in their own DDE:

freeway_control_request_for_detours
+ roadway_control_request_for_detours

control_data_to_manage_incidents

This data flow is used by traffic control to reply to a request for a control function on a freeway or roadway that has been issued by manage incidents. The data flow consists of the following data items which are defined in their own DDE:

freeway_control_response_for_detours
+ roadway_control_response_for_detours

control_parameters

This data flow is used within the Manage Traffic function to pass data between the Provide Traffic Surveillance and Provide Device Control facilities. It consists of the following data items each of which is defined in its own DDE:

barrier_system_activation_request_from_operator
+ environmental_data_for_signage
+ existing_sensor_static_data
+ lighting_system_activation_request_from_operator
+ roadway_warning_system_control_from_operator
+ local_sensor_data
+ other_control_data_for_highways
+ other_control_data_for_roads
+ other_roadway_information_data
+ other_TMC_cv_incidents
+ other_TMC_emergency_data
+ other_TMC_strategy_data
+ parking_lot_dynamic_information_request_by_traffic
+ parking_lot_input_data
+ prediction_data
+ probe_data_for_strategy
+ ramp_data
+ roadway_info_operator_input
+ roadway_info_traffic_data
+ roadway_information_status
+ status_data_for_highways
+ status_data_for_roads
+ strategy_data
+ traffic_data_for_strategy
+ vehicle_safety_data_indication
+ vehicle_signage_operator_input

control_status

This data flow is used within the Provide Vehicle Monitoring and Control function. It contains details of the vehicle's current control status, which may be manual, automatic control, platoon following, failed to take control, sensor failure, manual input detected, Built In Self Test (BIST) failure, driver and/or vehicle unsafe, inputs disabled, or input unknown. Automatic control may itself be split up into various forms, e.g. automatic control may be speed control, headway control, lane control, or any combination of these.

coordination_data_freeways_to_roads

This data flow is used within the Manage Traffic function and contains data that can be used to coordinate the traffic management strategy on road (surface street) network with that being implemented on freeway network served by the function. The data it contains will only apply to those indicators located on the freeway network whose operation has an impact on the road network, e.g. those that are immediately upstream of freeway exit ramps. The data flow consists of the following data items each of which is defined in its own DDE:

coordination_rule_highway_data_number
+ coordination_rule_highway_data_description
+ coordination_rule_data_for_highways

coordination_data_ramps_to_roads

This data flow is used within the Manage Traffic function and contains data that can be used to coordinate the traffic management strategy on road (surface street) network with that being implemented on freeway entry ramps served by the function. The data

it contains will show the current state of the ramps and will enable the road management process to react accordingly. The data flow consists of the following data items each of which is defined in its own DDE:

ramp_signal_state

coordination_data_roads_to_freeways

This data flow is used within the Manage Traffic function and contains data that can be used to coordinate the traffic management strategy on freeway network with that being implemented on the road (surface streets) network served by the function. The data it contains will only apply to those indicators located on the roads whose operation has an impact on the freeway network, e.g. those that are control roads which give access to freeway entry ramps. The data flow consists of the following data items each of which is defined in its own DDE:

coordination_rule_road_data_number
+ coordination_rule_road_data_description
+ coordination_rule_data_for_roads

coordination_data_roads_to_ramps

This data flow is used within the Manage Traffic function and contains data that can be used to coordinate the traffic management strategy on freeway entrance ramps with that being implemented on the road (surface streets) network served by the function. The data it contains will provide information about traffic conditions on links that feed traffic to the ramps entry ramps. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{link_identity
    + link_journey_time
    + link_queue_time}

coordination_rule_data_for_highways

This data flow is used within the Manage Traffic function and contains data that defines the action to be taken by the road system when a particular highway sign plan is used on the highway network. The action is expressed as a series of adaptive and fixed time plan numbers which are to be implemented. The data flow consists of the following data items each of which is defined in its own DDE:

highway_sign_plan_number
+ indicator_road_adaptive_plan_number
+ indicator_road_fixed_plan_number

coordination_rule_data_for_roads

This data flow is used within the Manage Traffic function and contains data that defines the action to be taken by the highway system when a particular adaptive or fixed time plan is used on the road network. The action is expressed as a series of highway sign plan numbers which are to be implemented. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_road_adaptive_plan_number
+ indicator_road_fixed_plan_number
+ highway_sign_plan_number

coordination_rule_highway_data_description

This data flow and comprises a meaningful description of the coordination rule defining a particular set of data used to coordinate the actions of the road system with those of the highway system.

coordination_rule_highway_data_number

This data flow contains the coordination rule number that identifies a particular set of data used to coordinate the actions of the road system with those of the highway system.

coordination_rule_road_data_description

This data flow contains a description of the coordination rule defining a particular set of data used to coordinate the actions of the highway system with those of the road system.

coordination_rule_road_data_number

This data flow contains the coordination rule number that identifies a particular set of data used to coordinate the actions of the highway system with those of the road system.

coordination_rules_for_highways

This data flow is used within the Manage Traffic function and contains data that defines the rules for the coordination of the highway and road control strategies. These rules will set out what action the road system is expected to take because a particular strategy has been implemented on the highway network. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{coordination_rule_data_for_highways
    + coordination_rule_highway_data_number
    + coordination_rule_highway_data_description}

coordination_rules_for_roads

This data flow is used within the Manage Traffic function and contains data that defines the rules for the coordination of the road and highway control strategies. These rules will set out what action the highway system is expected to take because a particular strategy has been implemented on the road network. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{coordination_rule_data_for_roads
    + coordination_rule_road_data_number
    + coordination_rule_road_data_description}

cost

This data flow is used by several functions within ITS and contains the cost of a service, such as: the cost of a display map or navigable map database update, or the cost of a transit fare, a paratransit service, a non-motorized transportation service, etc.

credit_identity

This data flow contains the identity number of a credit card which is to be used to secure preclearance from paying dues, taxes, and other commercial vehicles charges, or by a traveler or driver for payment of current or advanced tolls, fares, parking lot charges, or for yellow pages services.

crossing_adaptive_data

This data flow contains data about adaptive control data used by indicators that are multimodal crossing controllers to enable them to control traffic. The format of the data will depend upon the type of adaptive control being used.

crossing_close_duration

This data flow is used within the Manage Traffic function. It contains the time duration for which a crossing must close to vehicular (roads and highway) traffic to permit the passage of the alternate flow, e.g. railroad, river traffic, aircraft, etc. and is used to influence the control of signalized traffic intersections provided by the Provide Device Control facility.

crossing_close_time

This data flow is used within the Manage Traffic function. It contains the time period before a crossing must close to vehicular (road and highway) traffic to permit the passage of the alternate flow, e.g. railroad, river traffic, aircraft, etc. and is used to influence the control of signalized traffic intersections provided by the Provide Device Control facility.

crossing_closure_schedule

This data contains the scheduled time and duration for which a crossing must close to vehicular traffic to permit the passage of the alternate flow.

crossing_control_commands

This data flow is used within the Manage Traffic function and contains the actual control commands that make the multimodal crossing controller change the traffic stop/go outputs shown by its phases to traffic. The actual format of the control commands will depend on national standards being developed for controller fixed time plans, e.g. NTCIP.

crossing_cycle_time

This data flow contains data that includes the time taken to complete all the control commands in an multimodal crossing fixed time plan once only.

crossing_data_for_highways

This data flow is used within the Manage Traffic function. It contains data received from a multimodal crossings on highways about when they are going to close and for how long. The data flow consists of the following data items each of which is defined in its own DDE:

crossing_list
+ 1{crossing_close_time
  + crossing_close_duration}list_size

crossing_data_for_roads

This data flow is used within the Manage Traffic function. It contains data received from a multimodal crossings on roads about when they are going to close and for how long the closure will last. The data flow consists of the following data items each of which is defined in its own DDE:

crossing_list
+ 1{crossing_close_time
  + crossing_close_duration}list_size

crossing_equipment_data_for_highways

This data flow is used within the Manage Traffic function and provides information about each multimodal crossing so that closure of the crossing to highway traffic can be properly implemented when needed. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{crossing_identity
    + crossing_phase_data}

crossing_equipment_data_for_roads

This data flow is used within the Manage Traffic function and provides information about each multimodal crossing so that closure of the crossing to road traffic can be properly implemented when needed. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{crossing_identity
    + crossing_phase_data}

crossing_fixed_time_data

This data flow is used within the Manage Traffic function and includes information about fixed time control data used by indicators that are multimodal crossing controllers to enable them to control traffic. The data will be made up of the following items:

crossing_cycle_time
+ crossing_offset_time
+ crossing_control_commands

crossing_id

This is a data element used to identify a specific highway-rail crossing at grade.

crossing_identity

This data flow is used within the Manage Traffic function and contains the identity of a multimodal crossing. It consists of the following data items each of which is defined in its own DDE:

unit_number
+ location_identity

crossing_list

This data flow is used within the Manage Traffic function and contains a list of multimodal crossings to which the accompanying data applies. It consists of the following data items each of which is defined in its own DDE:

list_size
+ 1{crossing_identity}list_size

crossing_offset_time

This data flow contains the relative start time of the cycle of multimodal crossing control commands and is set at a value that will achieve synchronization between adjacent controllers, regardless of their type.

crossing_phase_data

This data flow provides information about the way in which each multimodal crossing operates, i.e. the minimum and maximum phase timings, phase change timings, etc.

current_asset_restrictions

This data flow includes information regarding restrictions on transportation asset usage based on infrastructure design, surveys, tests, or analyses. This could include height, width, weight, and special restrictions for bridges; both permanent restrictions, and temporary restrictions due to current maintenance and construction activities are included.

current_border_wait_time

This data flow contains the current wait time for traffic at a border crossing. This may include the time period for which the data is valid and measures by vehicle type, lane, or type of lane.

current_carbon_monoxide_pollution

This data flow is used within the Manage Traffic function and contains the average level of carbon monoxide pollution as measured by sensors. These sensors may provide general coverage of the geographic area served by the function, or located at the roadside, or measure data for particular vehicle types. The unit of measurement will be in parts per million (ppm).

current_charge_transactions

This data flow is used within the Provide Electronic Payment Services function and contains data about current parking lot charge payment transactions as they take place for recording in the log of parking lot transactions. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ date
+ parking_lot_cost
+ time
+ vehicle_identity

current_conditions

This data flow is used within the Provide Driver and Traveler Services function and contains data about current incidents and weather conditions. It consists of the following data items each of which is defined in its own DDE:

incident_location
+ incident_start_time
+ incident_duration

+ incident_type
+ weather_observations
+ weather_forecasts
+ road_conditions
+ road_weather_conditions

current_connection_status

This data flow contains information on the status of transit connections that are needed for the ongoing transit connection protection.

current_connection_status_from_other_transit

This data flow contains information on the status of transit connections from another manage transit function that are needed for the ongoing transit connection protection.

current_data

This data store is used within the Manage Traffic function to hold data about the current state of traffic on the road (surface street) and freeway network served by the function. It is a sample of the traffic at a single instant in time and is updated periodically from data collected by other processes within both this and other ITS functions. The data flow contains the following data items each of which is defined in its own DDE:

current_other_routes_use
+ parking_lot_storage_data
+ processed_traffic_data
+ processed_roadway_env_data
+ traffic_flow_state
+ traffic_management_storage_data
+ traffic_video_image_data
+ wide_area_pollution_data
+ traffic_sensor_output_data
+ environment_sensor_output_data
+ stored_incident_data
+ transportation_information_for_traffic_operations
+ current_dms_data_displayed

current_data_for_exchange

This data flow is used within the Manage Traffic function to provide data about the current state of traffic on the road (surface street) and freeway network served by the function in order to exchange it with other Traffic Management systems. It is a sample of the traffic at a single instant in time and is updated periodically from data collected by other processes within both this and other ITS functions. The data flow contains the following data items each of which is defined in its own DDE:

current_other_routes_use
+ parking_lot_storage_data
+ processed_traffic_data
+ processed_roadway_env_data
+ traffic_flow_state
+ traffic_management_storage_data
+ traffic_video_image_data
+ wide_area_pollution_data
+ traffic_sensor_output_data
+ environment_sensor_output_data
+ stored_incident_data
+ transportation_information_for_traffic_operations
+ current_dms_data_displayed

current_data_for_output

This data flow is used within the Manage Traffic function to provide data about the current state of traffic on the road (surface street) and freeway network served by the function to the facilities that will display and output the traffic data. It is a sample of the traffic at a single instant in time and is updated periodically from data collected by other processes within both this and other ITS functions. The data flow contains the following data items each of which is defined in its own DDE:

current_other_routes_use
+ parking_lot_storage_data
+ processed_traffic_data
+ processed_roadway_env_data
+ traffic_flow_state
+ traffic_management_storage_data
+ traffic_video_image_data
+ wide_area_pollution_data
+ traffic_sensor_output_data
+ environment_sensor_output_data
+ stored_incident_data
+ transportation_information_for_traffic_operations
+ current_dms_data_displayed

current_data_for_retrieval

This data flow is used within the Manage Traffic function. It contains a subset of the current data stored by the function which will be used as the basis for traffic data that is sent to other functions. The data flow consists of the following data items each of which is defined in its own DDE:

current_incident_data
+ current_other_routes_use
+ link_state_data
+ parking_lot_storage_data
+ traffic_flow_state
+ area_air_quality_index
+ current_roadway_maintenance_status
+ road_conditions
+ road_weather_conditions
+ work_zone_data_for_status
+ hri_sensor_data
+ traffic_video_image_data

current_dms_data_displayed

This data flow contains the actual data posted on dynamic message signs (DMS) at the roadside. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{device_identity
+ station_id
+ dms_advisory_text}

current_fare_transactions

This data flow is used within the Provide Electronic Payment Services function and contains data about current transit fare payment transactions as they take place for recording in the log of transit fare transactions. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ date
+ time
+ transit_fare
+ traveler_identity

current_fleet_maintenance_status

This data flow is used within the Manage Maintenance and Construction function and includes information on the maintenance status of all of the maintenance and construction vehicles in the fleet.

current_highway_network_data

This data flow is used within the Manage Traffic function and contains data about traffic conditions on links in the highway network served by the function. This data is used for determining traffic management strategies and is also sent for storage in both the long term and current data stores. It consists of the following data items each of which is defined in its own DDE:

link_list_for_highways
+ list_size{link_journey_time
    + link_delay}

current_highway_network_state

This data flow is sent by the Manage Traffic function to the Provide Driver and Traveler Services function and contains data about traffic conditions on links in the road network served by the function. The data is used by the route selection and guidance processes in determining the best vehicle routes. It consists of the following data items each of which is defined in its own DDE:

list_size{link_identity
    + link_journey_time
    + link_delay
    + link_status
    + link_level_of_service}

current_hri_state

This data flow is used by the Detect Roadway Events process to report the overall state of all sensors and indicators within the HRI domain. The flow is used by the Provide Advance Warnings process to provide equipment status, and to predict the near term conditions at the HRI.

current_hydrocarbon_pollution

This data flow is used within the Manage Traffic function and contains the current level of hydrocarbon pollution as measured by sensors. These sensors may provide general coverage of the geographic area served by the function, or located at the roadside, or measure data for particular vehicle types. The unit of measurement will be in parts per million (ppm).

current_incident_data

This data flow is used within the Manage Traffic function to transfer data about current incidents from the Incident Management facility to the Provide Traffic Surveillance facility for storage. It contains the following data items each of which is defined in its

own DDE:

list_size{current_incident_details
+ calculated_incident_times}

current_incident_details
This data flow is used within the Manage Traffic function and contains the details of a current incident. It consists of the following data items each of which is defined in its own DDE:

incident_description
+ incident_duration
+ incident_location
+ incident_number
+ incident_severity
+ incident_start_time
+ incident_traffic_impact
+ incident_type
+ incident_vehicles_involved

current_incident_static_data
This data flow contains some or all of the current static data used for the management of incidents. It therefore contains the contents of the following data store, which is defined in its own DDE:

static_data_for_incident_management

current_incidents
This data flow is used within the Manage Traffic function. It contains the current contents of all or part of the store of current incidents maintained by the Manage Incidents facility. It consists of the following data item which is defined in its own DDE:

current_incidents_data

current_incidents_data
This data flow is used within the Manage Traffic function and contains data about current incidents. It consists of the following items each of which is defined in its own DDE:

current_incident_details

current_incidents_data_for_transit
This data flow contains information from the Manage Traffic function about current incidents. It consists of the following items each of which is defined in its own DDE:

current_incident_details

current_incidents_data_output
This data flow is used within the Manage Traffic function. It contains data about a incident which has just become current and for which a response is needed. The data flow is sent to another process in the Manage Incidents facility for that response to be generated. It consists if the following items each of which is defined in its own DDE:

incident_duration
+ incident_location
+ incident_number
+ incident_severity
+ incident_start_time
+ incident_traffic_impact
+ incident_type
+ incident_vehicles_involved

current_incidents_data_request
This data flow is used within the Manage Traffic function to request output of data on current incidents to traffic operations personnel. The output can be tailored to cover some types of incidents in some locations. The data flow consists of the following data items each of which is defined in its own DDE:

incident_location
+ incident_type

current_incidents_data_update
This data flow is used within the Manage Traffic function and contains data about a new current incident (formerly a predicted incident) which must be added to the store of current incidents. It consists if the following items each of which is defined in its own DDE:

incident_duration
+ incident_location
+ incident_number
+ incident_severity

+ incident_start_time
+ incident_traffic_impact
+ incident_type

current_incidents_new_data

This data flow is used within the Manage Traffic function and contains data about a new current incident (formerly a possible incident) which must be added to the store of current incidents. It consists if the following items each of which is defined in its own DDE:

incident_number
+ incident_location
+ incident_start_time
+ incident_duration
+ incident_type
+ incident_severity
+ incident_traffic_impact
+ incident_vehicles_involved

current_incidents_request

This data flow is used within the Manage Traffic function. It contains a request for output of some or all of the contents of the store of current incidents data held by the Manage Incidents facility. It consists of either of both of the following data items, each of which is defined in its own DDE:

incident_type
+ incident_request_criteria

current_incidents_store

This data store is used within the Manage Traffic function and holds data about incidents that are currently in progress. The data consists if the following items each of which is defined in its own DDE:

list_size
+ list_size{current_incident_details}

current_nitrogen_oxides_pollution

This data flow is used within the Manage Traffic function and contains the average level of nitrogen oxides as measured by sensors. These sensors may provide general coverage of the geographic area served by the function, or located at the roadside, or measure data for particular vehicle types. The unit of measurement will be in parts per million (ppm).

current_other_routes_use

This data flow is used within the Provide Driver and Traveler Services function and contains data about the non-vehicle portion(s) of routes that have been requested by travelers. These route portions will involve the use of modes such as cycling, walking, etc. The data consists of the following data items each of which is defined in its own DDE:

route_segment_total_number{route_segment_identity
+ time_period{route_segment_guided_travelers}
+ route_segment_journey_time}

current_other_routes_use_attributes

This data flow is used within the Provide Driver and Traveler Services function to provide data attribute information to the data archive about the non-vehicle portion(s) of routes that have been requested by travelers. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

current_other_routes_use_for_archive

This data flow is used within the Provide Driver and Traveler Services function and contains data for the data archive about the non-vehicle portion(s) of routes that have been requested by travelers. These route portions will involve the use of modes such as cycling, walking, etc. The data consists of the following items each of which is defined in its own DDE:

route_segment_total_number{route_segment_identity
+ time_period{route_segment_guided_travelers}
+ route_segment_journey_time}

current_ozone_pollution

This data flow is used within the Manage Traffic function and contains the average level of ozone pollution as measured by sensors. These sensors may provide general coverage of the geographic area served by the function, or located at the roadside, or measure data for particular vehicle types. The unit of measurement will be in parts per million (ppm).

current_particulate_pollution

This data flow is used within the Manage Traffic function and contains the average level of pollution from particulates as measured by sensors. These sensors may provide general coverage of the geographic area served by the function, or located at the roadside, or measure data for particular vehicle types. The unit of measurement will be in parts per million (ppm).

current_pollution_location

This data flow is used within the Manage Traffic function and gives the location coordinates from which a set of current pollution levels have been obtained. The location may be one at which the pollution for the geographic area served by the function is measured, or one at which roadside pollution levels are measured, or one at which pollution data for particular vehicle types is measured. These pollution levels will be defined in an associated set of data flows. This data flow consists of the following data item which is defined in its own DDE:

location_identity

current_ramp_state

This data flow is used within the Manage Traffic function to transfer the current ramp state from the Provide Device Control facility to the Provide Traffic Surveillance facility for storage. It will have two states, either open (allow traffic to flow down the ramp) or closed.

current_road_network_data

This data flow is used within the Manage Traffic function and contains data about traffic conditions on links in the road network served by the function. This data is used for determining traffic management strategies and is also sent for storage in both the long term and current data stores. It consists of the following data items each of which is defined in its own DDE:

link_list_for_roads
+ list_size{link_journey_time
+ link_delay}

current_road_network_state

This data flow is sent by the Manage Traffic function to the Provide Driver and Traveler Services function and contains data about traffic conditions on links in the highway network served by the function. The data is used by the route selection and guidance processes in determining the best vehicle routes. It consists of the following data items each of which is defined in its own DDE:

list_size{link_identity
+ link_journey_time
+ link_delay
+ link_status
+ link_level_of_service}

current_road_network_use

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Traffic and Manage Maintenance and Construction functions. It contains information about how many vehicles are being guided down each route segment and the average journey time for each route segment provided by guided vehicles. The data consists of the following data items each of which is defined in its own DDE:

route_segment_total_number{route_segment_identity
+ route_segment_journey_time}

current_road_network_use_for_archive

This data flow is used within the Provide Driver and Traveler Services function and contains information about how many vehicles are being guided down each route segment and the average journey time for each route segment provided by guided vehicles. The data consists of the following data items each of which is defined in its own DDE:

route_segment_total_number{route_segment_identity
+ route_segment_journey_time}

current_road_weather_from_traffic

This data flow contains current weather and roadway environment information that is provided to other ITS functions for use in providing traveler services. The data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

current_roadside_pollution_location
This data flow is used within the Manage Traffic function and contains the location at which an associated set of current roadside atmospheric pollution values have been obtained from sensors. It consists of the following data item which is defined in its own DDE:

location_identity

current_roadway_maintenance_status
This data flow contains information summarizing the current roadway maintenance activities. This also includes maintenance fleet operations affecting the road network such as winter maintenance (snow plow schedules and status).

current_roadway_network_data
This data flow is used within the Manage Traffic function and contains data about traffic conditions on links in the road (surface street) and highway network served by the function. The data is used for determining traffic management strategy and is also sent for in both the long term and current data stores. It consists of the following data items each of which is defined in its own DDE:

current_highway_network_data
+ current_road_network_data

current_roadway_network_state
This data flow is sent by the Manage Traffic function to the Provide Driver and Traveler Services function and contains data about traffic conditions on links in the road (surface street) and highway network served by the function. The data is used by the route selection and guidance processes in determining the best vehicle routes. It consists of the following data items each of which is defined in its own DDE:

current_highway_network_state
+ current_road_network_state

current_sulfur_dioxide_pollution
This data flow is used within the Manage Traffic function and contains the average level of sulfur dioxide pollution as measured by sensors. These sensors may provide general coverage of the geographic area served by the function, or located at the roadside, or measure data for particular vehicle types. The unit of measurement will be in parts per million (ppm).

current_toll_transactions
This data flow is used within the Provide Electronic Payment Services function and contains data about current toll transactions as they take place for recording in the log of toll transactions. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ cv_carrier_number
+ cv_vehicle_number
+ date
+ stored_credit
+ time
+ toll_cost
+ toll_plaza_identity
+ toll_route_segments
+ vehicle_identity

current_traffic_data_for_retrieval
This data flow contains current traffic information that is provided to other ITS functions for use in providing traveler services. The data flow consists of the following data items each of which is defined in its own DDE:

link_state_data
+ traffic_flow_state
+ current_roadway_maintenance_status
+ work_zone_data_for_status

current_traffic_incident_data_for_retrieval
This data flow contains current traffic incident information that is provided to other ITS functions for use in providing traveler services. The data flow consists of the following data item which is defined in its own DDE:

current_incident_data

current_traffic_incident_response
This data flow is sent to the Manage Traffic function from the Manage Emergency Services function to provide the status of the incident response including changes to traffic control strategies, lane restrictions, rail crossing status, and other measures to respond to an incident. This data flow consists of the following items each of which is defined in its own DDE:

current_incident_details

+ traffic_control_strategy_alterations
+ incident_strategy_override
+ cv_incident_override
+ hri_strategy_override
+ evacuation_plan_activation

current_traffic_pollution_data

This data flow is sent from the Manage Emissions function to transfer current pollution data. It contains data about the current levels of pollution and consists of the following data item which is defined in its own DDE:

list_size{pollution_sensor_data}

current_transit_routes_use

This data flow is used within the Provide Driver and Traveler Services and Manage Traffic functions. It contains data showing the numbers of travelers using all or part of the available transit routes, either for personal guidance or as part of trip requests. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{transit_route_number
+ transit_route_current_use}

current_weather_observations

This data flow contains weather observations including temperature (ambient and dew point), pressure, wind parameters (direction, speed, and character), humidity, precipitation (amount and type), visibility, light conditions, lightning data, radar data, etc.

cv_account_number

This data flow is used within the Manage Commercial Vehicle function and contains the account number from which payment is to be made for the taxes and duties required for a commercial vehicle to use a particular route.

cv_admin_data_for_roadside

This data flow is used within the Manage Commercial Vehicle function. It contains data that is being sent from the commercial vehicle trips and clearances administration facility to the commercial vehicle roadside checkstation facility. The data flow consists of the following data items each of which is defined in its own DDE:

cvo_border_agency_clearance_results
+ cv_border_database_update
+ cv_credentials_database_update
+ cv_credentials_information_response
+ cv_safety_database_update
+ cv_safety_information_response
+ cvo_driver_record_to_roadside
+ cvo_transportation_border_clearance
+ cvo_citation_info
+ cvo_accident_report
+ cvo_credentials_status
+ cvo_credentials_info
+ cv_carrier_participation_report_to_roadside
+ cv_roadside_inspection_configuration
+ cv_roadside_inspection_control

cv_admin_for_fleet_ops

This data flow contains information from the Administer Commercial Vehicles process to support the Manage Commercial Vehicle Fleet Operations process. It consists of the following items each of which is defined in its own DDE:

cf_enrollment_information
+ cf_enrollment_payment_confirmation
+ cv_route_restrictions
+ cvo_credential_status
+ cvo_safety_status
+ cvo_driver_record_info
+ cf_periodic_activity_report
+ cf_roadside_activity_report
+ cvo_accident_data_for_fleet
+ cvo_citation
+ cvo_credentials_status_for_fms
+ commercial_vehicle_permit_information
+ cf_enforcement_trigger_areas
+ cf_enforcement_trigger_notification

cv_admin_inspection_data

This data flow is used within the Manage Commercial Vehicle function. It provides a record of the results of commercial vehicle safety inspections from the commercial vehicle administrative functions to the commercial vehicle on-board facility.

cv_amount_billed

This data flow is used within the Manage Commercial Vehicles function to show the amount billed to a particular account for the

enrollment of a commercial vehicle cargo, weight and type on a particular route. Set to zero may mean the payment request failed.

cv_archive_catalog
This data flow is used to provide the description of the data contained in the collection of commercial vehicle data that has been stored and made available for the Manage Archive function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g., time range of entries, number of entries; or simple data product.

cv_archive_catalog_request
This data flow from the Manage Archived Data function contains the request for a catalog of the data held by the Manage Commercial Vehicles function. The request for a catalog may include either or both the description of the types of data the archive is interested in or a time frame over which the requested information may be available.

cv_archive_data
This data flow from the Manage Commercial Vehicle function to Manage Archive Data function contains the commercial vehicle data to be archived along with meta data describing the information. This data can include a catalog of the data held by the function. The data contains information about cargo identification, fleet activity, hazardous material, border crossings, commercial vehicle on-board safety, inspections, credentials, and vehicle origin/destination. This data flow is made up of the following items each of which is defined in its own DDE:

cv_archive_catalog
+ cv_data_for_archive

cv_archive_data_request
This data flow from the Manage Archived Data function contains the request for the data held by the Manage Commercial Vehicles function. The request for data may include either or both the description of the data required or a time frame over which the requested information may be available.

cv_archive_input
This data flow from the Manage Archived Data function to the Manage Commercial Vehicles function contains the request for the catalog of data and the data itself. This flow also contains a report of status from the archive function. This data flow consists of the following data items each of which is defined in its own DDE:

cv_archive_request
+ cv_archive_status

cv_archive_request
This data flow from the Manage Archived Data function contains the request for data collected and stored by Manage Commercial Vehicle function. The request can be a request for a catalog of the data held by the function or a request for the data itself. This data flow consists of the following data items each of which is defined in its own DDE:

cv_archive_catalog_request
+ cv_archive_data_request

cv_archive_status
This data flow is sent from the Manage Archived Data function to the Manage Commercial Vehicles function. It is the status returned when commercial vehicle archive data is sent to the Manage Archived Data function.

cv_archived_inspection_data
This data flow is used within the Manage Commercial Vehicles function and contains archived commercial vehicle inspection data collected at the commercial vehicle roadside checkstation facility. It consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_driver_details
+ cv_inspection_data
+ cv_inspector_safety_data_input
+ cv_not_pulled_in
+ cv_roadside_report
+ cv_safety_status_code
+ cv_vehicle_details
+ time

cv_archived_safety_data
This data flow is used within the Manage Commercial Vehicles function. It contains information that is collected at a roadside checkstation facility as the result of the safety checking of an approaching commercial vehicle. This data is stored in the log of roadside facility data. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_safety_pull_in_output
+ cv_safety_override
+ time

cv_assignment_data
This data flow contains information about a commercial vehicle assigned to a specific route. The data flow consists of the

following data items each of which is defined in its own DDE:

cv_vehicle_number
+ cv_route_number

cv_assignment_info

This data flow contains information about a commercial vehicle and driver assigned to a specific route. The data flow consists of the following data items each of which is defined in its own DDE:

cv_driver_number
+ cv_driver_identity_characteristic_key
+ cv_route_number
+ cv_vehicle_number

cv_border_data

This data flow is used within the Manage Commercial Vehicles function. It contains commercial vehicle identification, vehicle characteristics and lock tag data for initiating border clearance checks at a commercial vehicle roadside border crossing facility. The data flow consists of the following data items each of which is defined in its own DDE:

cv_trip_identity
+ cv_lock_tag_data
+ cv_vehicle_characteristics
+ cv_on_board_border_data

cv_border_database_update

This data flow is used within the Manage Commercial Vehicles function. It contains the list of enrolled commercial vehicle credentials maintained by the commercial vehicle administrative processes and is used to periodically update the database at the roadside border crossing facilities served by the function. The databases provide the facilities with an up to date list of which vehicles have been cleared (enrolled) to potentially pass through without stopping. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_trip_identity

cv_border_decision

This data flow is used within the Manage Commercial Vehicle function. It contains the results of an automatic border crossing check that has been made by a process in the commercial vehicle roadside checkstation facility. This data is sent for output to the roadside inspector interface process, to give the inspector the opportunity to override the automatic decision. The data flow consists of the following data item which is defined in its own DDE:

cv_border_pull_in_output

cv_border_enrollments

This data flow is used within the Manage Commercial Vehicles function. It contains necessary enrollment information for commercial vehicles at roadside facilities that are international border crossings. This flow will typically provide information about the carrier or freight forwarder, the vehicle, the driver and the current trip including a cargo declaration.

cv_border_override

This data flow is used within the Manage Commercial Vehicles function. It contains the decision made by an inspector at a commercial vehicle roadside checkstation facility to override (or not) the automated pass or pull-in decision made by the process responsible for border crossing checking. The data flow contains the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_border_override_code
+ time

cv_border_override_code

This data flow is used within the Manage Commercial Vehicles function. It contains a code which gives the results of the decision made by an inspector at a commercial vehicle roadside checkstation facility to override (or not) the automated pass or pull-in decision made by the process responsible for border crossings checking. The data flow consists of the following data item which is defined in its own DDE:

cv_operator_override

cv_border_problem

This data flow is used within the Manage Commercial Vehicles function to identify the nature of a problem with a commercial vehicle's data at a border crossing. It indicates whether the problem was related to data associated with the vehicle, driver, or cargo.

cv_border_pull_in_output

This data flow is used in the Manage Commercial Vehicles function and contains the output of the result of an analysis of the data from a commercial vehicle that is approaching a roadside checkstation facility, by the process responsible for commercial vehicle border crossing checking. The result is expressed in terms of a pull-in or pass decision for the vehicle. The data flow consists of the following data items, each of which is defined in its own DDE:

cv_credentials_details
+ cv_border_problem
+ time

cv_border_record
This data flow is used within the Manage Commercial Vehicles function. It contains information that is collected at a roadside checkstation facility as the result of the border crossing checks on an approaching commercial vehicle. This data is stored in the log of roadside facility data. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{cv_border_pull_in_output
    + cv_border_override}

cv_cargo_class
This data flow contains the cargo classification for a particular use of a commercial vehicle route.

cv_cargo_discharged
This data flow contains an identification for cargo that was discharged from a commercial vehicle. The time, date, location, vehicle mileage, etc. when this activity took place are recorded in separate data flows. This data flow consists of an identifier of the cargo, which could include such things as news print, clothing, canned food, dairy products, or furnishings. The activity may in some cases only apply to part of the vehicle's cargo. However for every one of these discharge activities there should be a similar loading activity which is defined in a separate data flow.

cv_cargo_information
This data flow contains safety and characteristic information of cargo contained in freight equipment. The data flow consists of the following data item which is defined in its own DDE:

cargo_data
+ cargo_safety_status

cv_cargo_loaded
This data flow contains an identification code for cargo that was loaded onto a commercial vehicle. The time, date, location, vehicle mileage, etc. when this activity took place are recorded in separate data flows. This data flow consists of an identifier which specifies the type of cargo. Examples of the types of cargo could be items such as but not limited to electrical goods, washing machines, freezers, sand, sacks of sand, beef meat (frozen), beef livestock. The activity may in some cases only apply to part of the vehicle's cargo. However for every one of these loading activities there should be a similar discharge activity which is defined in a separate data flow. This data other flow also contains further examples of the codes that can be used.

cv_cargo_status
This data flow contains the status of a cargo being transported by a commercial vehicle in terms of its commodity code and its HAZMAT placard.

cv_carrier_number
This data flow contains a character code that is the carrier identification number.

cv_carrier_participation_report_to_roadside
This data flow is used within the Manage Commercial Vehicles function and describes a motor carrier's participation in commercial vehicle operations programs. It consists of the following items each of which is defined in its own DDE:

cv_carrier_number
+ carrier_participation_details

cv_check_credentials_request
This data flow is used within the Manage Commercial Vehicles function and contains a request to check the commercial vehicle credentials. The check will produce credentials data stored against the carrier, driver and vehicle number and show whether or not any problem(s) is (are) flagged. The data flow consists of the following data item which is defined in its own DDE:

cv_credentials_details

cv_check_credentials_response
This data flow is used within the Manage Commercial Vehicles function and contains the result of a previous request to check the commercial vehicle credentials. The check shows credentials data stored against the carrier, driver and vehicle number and indicates whether or not any problem(s) is (are) flagged. The data flow consists of the following data item which is defined in its own DDE:

cv_credentials_details
+ cv_credentials_status_code

cv_commit_local_enrollment
This data flow is used within the Manage Commercial Vehicles function. It contains a request from a remote commercial vehicle administration function to update the credentials for a particular commercial vehicle at the roadside checkstation facilities (enroll the vehicle) that are served by the local function. The data flow consists of the following data items each of which is defined in its own DDE:

cv_route_details

+ cv_credentials_details
+ cv_trip_classification_data
+ cv_trip_identity

cv_commit_remote_enrollment

This data flow is used within the Manage Commercial Vehicles function. It contains a request to update the credentials for a particular commercial vehicle at the roadside checkstation and border crossing facilities along its route (enroll the vehicle) that are not served by the local commercial vehicle administration function. The data flow consists of the following data items each of which is defined in its own DDE:

cv_route_details
+ cv_credentials_details
+ cv_trip_classification_data
+ cv_trip_identity

cv_confirmed_enrollment

This data flow is used within the Manage Commercial Vehicles function and contains confirmation that a previous request for enrollment payment has been accepted by the financial institution. It consists of the following data items each of which is defined in its own DDE:

cv_account_number
+ cv_payment_confirmed

cv_credentials

This data flow is used within the Manage Commercial Vehicles function and contains details about a commercial vehicle, e.g. make, model, type, special features, etc. It is set up at manufacture when the on-board vehicle system is installed and cannot be changed by the driver.

cv_credentials_data_output

This data flow is used within the Manage Commercial Vehicles function and contains the data produced by a previous request by a commercial vehicle inspector for the output of the credentials for a particular commercial vehicle. The data to be output will have been specified by the inspector in terms of a carrier, driver and/or vehicle number. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_credentials_status_code
+ cv_credentials_information

cv_credentials_data_request

This data flow is used within the Manage Commercial Vehicles function and contains the request by the commercial vehicle roadside checkstation inspector for output of some credentials of a particular commercial vehicle. The data to be output is specified by the inspector in terms of a carrier, driver and/or vehicle number. The data flow consists of the following data item which is defined in its own DDE:

cv_credentials_details

cv_credentials_database_update

This data flow is used within the Manage Commercial Vehicles function. It contains the list of enrolled commercial vehicle credentials maintained by the commercial vehicle administrative processes and is used to periodically update the credentials database at the roadside checkstation facilities served by the function. The databases provide the facilities with an up to date list of which vehicles have been cleared (enrolled) to potentially pass through without stopping. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_credentials_status_code
+ cv_trip_classification_data

cv_credentials_details

This data flow is used within the Manage Commercial Vehicles function and contains details about the carrier, driver and vehicle numbers that are used as the key identifiers for commercial vehicles credentials data. The data flow consists of the following items each of which is defined in its own DDE:

cv_vehicle_number
+ cv_carrier_number
+ cv_driver_number

cv_credentials_enrollment_attributes

This data flow is used to provide the meta data included with the cv_credentials_enrollment_data for release to archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute

+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

cv_credentials_enrollment_data

This data flow is used within the Manage Commercial Vehicles function and contains information that is to be archived. The data contains information about hazardous material and vehicle origin/destination. The data flow consists of the following data items each of which is defined in its own DDE:

cv_update_new_credentials_request

cv_credentials_information

This data flow is used within the Manage Commercial Vehicles function and contains some commercial vehicle credentials data which has been previously requested by the commercial vehicle roadside checkstation inspector. This data will be used by the inspector for checking vehicles as they pass. The data flow consists of the following item of data which is defined in its own DDE:

information_datapage

cv_credentials_information_response

This data flow is used within the Manage Commercial Vehicles function and contains the data resulting from a request for some commercial vehicle credentials data to be down loaded to the database maintained by the commercial vehicles roadside checkstation facility. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_credentials_status_code

cv_credentials_problem

This data flow is used within the Manage Commercial Vehicles function to identify the nature of a problem with a commercial vehicle's credentials.

cv_credentials_status_code

This data flow is used within the Manage Commercial Vehicles function and contains the status of an associated set of commercial vehicle credentials. This status may be clear, or set to indicate that there is a problem.

cv_critical_problem

This data flow contains data about potential critical safety and security problem(s) that have been identified from an analysis of the vehicle's on-board data. The data flow consists of the following data items each of which is defined in its own DDE:

cv_critical_safety_problem
+ cv_critical_security_problem

cv_critical_safety_problem

This data flow is used within the Manage Commercial Vehicles function. It contains data about potential critical safety problem(s) that have been identified from an analysis of the vehicle's on-board data.

cv_critical_security_problem

This data flow is used within the Manage Commercial Vehicles function. It contains data about potential critical security problem(s) that have been identified from an analysis of the vehicle's on-board data.

cv_customs_inspector_identity

This data flow contains the identity of the customs inspector who sealed cargo that is crossing a border. The sealing process will have resulted in this data as well as the time and date being loaded into the lock tag. This data will be checked at each border crossing point to make sure that the cargo has not been touched since in was sealed.

cv_daily_logs

This data flow is used within the Manage Commercial Vehicles function. It contains a copy of the daily log of all the activities

that have taken place at a commercial vehicle roadside checkstation facility and a border crossing facility. This data is analyzed to determine problem vehicles, drivers and carriers for future pull-in requests and reports to the government administrators. The data flow consists of the following data items each of which is defined in its own DDE:

cv_roadside_daily_log
+ cvo_border_clearance

cv_daily_logs_attributes

This data flow is used to provide the meta data included with the cv_daily_logs for release to archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

cv_data_archive

This data store is used within the Manage Commercial Vehicles function and contains information that is to be archived by the Archive Data Management function. The data contains information about cargo identification, fleet activity, hazardous material, border crossings, commercial vehicle on-board safety and vehicle origin/destination. It consists of the following data items each of which is defined in its own DDE:

cv_archive_catalog
  + cv_data_for_archive

cv_data_for_archive

This data flow is from the Manage Commercial Vehicles function to the Manage Archive Data function. It is used to provide details of commercial vehicle credentials, roadside and border crossing data for the archive. This data flow is made up of the following items each of which is defined in its own DDE:

cv_daily_logs
+ cv_daily_logs_attributes
+ cv_credentials_enrollment_data
+ cv_credentials_enrollment_attributes

cv_data_for_fleet_operations

This flow sends data from the Provide Commercial Vehicle Data Collection function to the Manage Commercial Vehicle Fleet Operations function. It consists of the following items each of which is defined in its own DDE:

cf_on_board_driver_log
+ cf_on_board_vehicle_data
+ cv_driver_response
+ cv_identities
+ cv_route_warning
+ cvo_on_board_safety_data
+ cvo_security_alarm
+ cvo_trip_log_data

cv_database

This data store is used within the Manage Commercial Vehicles function and contains a list of carriers, vehicles and driver numbers that have been enrolled, together with flags to identify any for which there are safety and tax payment problems. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{cv_credentials_details
+ cv_trip_classification_data
+ cv_credentials_status_code
+ cvo_transportation_border_results
+ cvo_border_results
+ cv_trip_identity
+ cv_driver_number
+ cv_driver_credentials
+ cv_driver_license_citations
+ cvo_citation_data
+ cvo_violation
+ cv_driver_identity_characteristic_key}

cv_disable
This data flow is used to initiate the procedure for disabling a commercial vehicle in a safe manner.

cv_disable_info
This data flow is used to inform roadside facilities that a vehicle has received and stored a remote command to disable and safely shutdown the vehicle. This flow consists of the following items each of which is defined in its own DDE:

cv_disable
+ cv_identity_details

cv_driver_alert_response
This data flow contains a commercial vehicle driver's response to a security related alert which has been detected on-board the commercial vehicle or by the fleet-freight manager. The commercial vehicle driver can provide additional information about the alert and indicate the validity of the alarm (i.e. false alarm).

cv_driver_assignment
This data flow specifies the driver assigned (using a driver ID) to a commercial vehicle and the route (using a route ID) the driver should follow. It also includes information that uniquely identifies the driver (using one or more biometric parameters or an encoded personal identification code that only the driver should know), so that the driver may be positively authenticated. The data flow consists of the following items each of which is defined in its own DDE:

cv_driver_identity_characteristic_key
+ cv_driver_number
+ cv_route_number

cv_driver_authentication_status
This data flow indicates if a driver has been authenticated as the expected driver of the vehicle. It indicates that the driver has passed a biometric or personal identification code test.

cv_driver_credentials
This data item contains details of the commercial vehicle driver's license.

cv_driver_credit_identity
This data flow is sent from the Provide Electronic Payments Services function to the Manage Commercial Vehicles function. It contains the credit identity of a commercial vehicle driver or the amount of stored credit obtained from the traveler card / payment instrument terminator and consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit

cv_driver_data_input
This data flow is used within the Manage Commercial Vehicle function. It contains data that has been input by a commercial vehicle driver for loading into the vehicle's log. The data flow consists of the following data items each of which is defined in its own DDE:

cv_fuel_purchase_data
+ cv_driver_number
+ cv_driver_credentials
+ cv_driver_license_citations
+ cv_repairs_and_service_records
+ cvo_cargo_data_from_driver
+ driver_identity
+ cv_driver_identity_characteristic_key

cv_driver_data_output
This data flow is used within the Manage Commercial Vehicle function and contains the output from the commercial vehicle's data store requested by the driver.

cv_driver_details
This data flow is used within the Manage Commercial Vehicles function and contains details about a particular commercial vehicle driver. The driver identity is held in an associated data flow. The data flow consists of the following data items each of which is defined in its own DDE:

cv_driver_credentials
+ cv_driver_license_citations

cv_driver_enrollment_cost
This data flow is sent from the Manage Commercial Vehicles function to the Provide Electronic Payment Services function. It contains the cost of the electronic credential filing and taxes, payment of which was previously requested by the commercial vehicle driver acting in the role of fleet manager, and is only sent when the cost is to be deducted from the credit stored on the traveler card / payment instrument being used by the driver. The data flow consists of the following data items each of which is defined in its own DDE:

cv_amount_billed
+ stored_credit

cv_driver_enrollment_information
This data flow is used within the Manage Commercial Vehicles function and contains data about the taxes and duties required for a commercial vehicle to be enrolled for a particular route as provided by the commercial vehicle driver. It consists of the following data items each of which is defined in its own DDE:

cv_route_number
+ cv_taxes_and_duties

cv_driver_enrollment_payment_confirmation
This data flow is used within the Manage Commercial Vehicles function to confirm that a payment of the taxes and duties for the enrollment of a particular commercial vehicle cargo, weight and type on a particular route from the commercial vehicle driver has been accepted. It consists of the following data items each of which is defined in its own DDE:

cv_account_number
+ cv_amount_billed
+ cv_driver_credit_identity
+ cv_route_number

cv_driver_enrollment_payment_request
This data flow is used within the Manage Commercial Vehicles function and contains data required to enable payment for enrollment of a commercial vehicle for the use of a particular route as provided by the commercial vehicle driver. It consists of the following data items each of which is defined in its own DDE:

cv_account_number
+ cv_driver_credit_identity
+ cv_route_number

cv_driver_enrollment_request
This data flow is used within the Manage Commercial Vehicles function and contains data required for the enrollment of a commercial vehicle on a particular route as provided by a commercial vehicle driver. It consists of the following data items each of which is defined in its own DDE:

cv_cargo_class
+ cv_route_number
+ cv_trip_identity
+ cv_vehicle_class
+ cv_weight_class

cv_driver_identity_characteristic_key
This data flow contains unique identification information about a driver that is used to authenticate a driver. This may include biometric parameters for a driver or an encoded Personal Identification Number (PIN) used to identify a driver.

cv_driver_identity_characteristics
This data flow contains biometric parameters derived from a driver or a secret code entered by a commercial vehicle driver. This data is used to uniquely identify the driver.

cv_driver_license_citations
This data items is used within the Manage Commercial Vehicles function and contains details of any citations, etc. recorded against the driver's license.

cv_driver_number
This data flow contains an alphanumeric code that is the commercial vehicle driver identification number.

cv_driver_output_message
This data flow contains general information and responses to alerts by the commercial vehicle driver. The data flow consists of the following items each of which is defined in its own DDE:

cv_general_output_message
+ cv_driver_alert_response

cv_driver_response

This data flow contains a commercial vehicle driver's response to a security related alert which has been detected on-board a commercial vehicle or by the fleet-freight manager. The data flow consists of the following data item each of which is defined in its own DDE:

cv_driver_alert_response

cv_driver_route_data

This data flow is used within the Manage Commercial Vehicle function and contains data about a vehicle route requested by a commercial vehicle driver. It consists of the following data items each of which is defined in its own DDE:

cv_route_data
+ route_type
+ cv_route_number

cv_driver_route_request

This data flow is used within the Manage Commercial Vehicles function by the commercial vehicle driver to request a commercial vehicle route. It contains the following data items each of which is defined in its own DDE:

trip_request
+ route_type

cv_driver_storage_request

This data flow is used within the Manage Commercial Vehicles function to manage the store of routes used by the commercial vehicle driver. It consists of the following data items each of which is defined in its own DDE:

cv_storage_action_flag
+ cv_route_number

cv_electronic_clearance_data

This data flow is used within the Manage Commercial Vehicles and Provide Electronic Payment Services functions. It contains data that has been stored on a commercial vehicle lock tag to enable its identification at commercial vehicle roadside checkstation facilities for the purposes of electronic clearance, and/or safety inspection, and/or border clearance. The data flow consists of the following data items each of which is defined in its own DDE:

cv_lock_tag_data

cv_electronic_screening_data

This data flow is used within the Manage Commercial Vehicles and Provide Electronic Payment Services functions. It contains data that has been stored on a commercial vehicle tag to enable its identification at commercial vehicle roadside checkstation facilities for the purposes of electronic screening. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_on_board_screening_data

cv_emergency_data

This data flow is sent by the Manage Commercial Vehicles function to the Manage Emergency Services function and contains information on hazardous load(s) being carried by commercial vehicles, and security related incidents involving commercial vehicles and freight equipment. It contains commercial vehicle violation and accident data. It consists of the following items each of which is contained in its own DDE:

cf_hazmat_vehicle_information
+ cf_hazmat_route_information
+ cv_hazmat_alarm
+ cv_violation_data
+ cvo_accident
+ cvo_alarm
+ freight_alarm

cv_enrollment_information

This data flow is used within the Manage Commercial Vehicles function and contains the data for enrollment on a particular route produced from data supplied by the commercial vehicle driver. It contains the following data items each of which is defined in its own DDE:

cv_route_number
+ cv_taxes_and_duties
+ route
+ route_type
+ cv_border_enrollments
+ cv_special_vehicle_enrollments

cv_enrollment_list

This data flow is used within the Manage Commercial Vehicles function and contains a list of taxes and duties that are to be paid

from an account number to enable a commercial vehicle to be enrolled for a particular route. It consists of the following data items each of which is defined in its own DDE:

cv_account_number
+ cf_manager_credit_identity
+ cv_taxes_and_duties

cv_enrollment_payment_confirmation

This data flow is used within the Manage Commercial Vehicles function to confirm that a payment of the taxes and duties for the enrollment of a particular commercial vehicle cargo, weight and type on a particular route from the commercial vehicle driver has been accepted. It consists of the following data items each of which is defined in its own DDE:

cv_account_number
+ cv_amount_billed
+ cv_driver_credit_identity
+ cv_route_number

cv_enrollment_request

This data flow is used within the Manage Commercial Vehicles function and contains the data needed to obtain enrollment information for a particular commercial vehicle cargo, type and weight on a particular route as provided by the commercial vehicle driver. It consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_route_data
+ cv_route_number
+ cv_trip_classification_data
+ cv_trip_identity
+ route_type
+ border_crossing_request
+ special_vehicle_application

cv_facility_log

This contains the contents of the daily logs of activities at commercial vehicle roadside and border checkstation facilities. It consists of the following data items, each of which is defined in its own DDE.

list_size
+ list_size{cv_roadside_daily_log}
+ cvo_border_clearance
+ cvo_citation_data
+ cvo_violation

cv_fleet_maintenance_data

This data store contains the set of information concerning the maintenance records and schedules for each of the vehicles operating within a commercial vehicle fleet. This data consists of the following items each of which is defined in its own DDE:

list_size + list_size{cv_maintenance_data}

cv_freight_breach

This data flow contains breach or tamper event data for freight equipment attached to a commercial vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

freight_breach

cv_freight_integrity

This data flow contains freight equipment data from which a breach or tamper incident can be evaluated. The data flow consists of the following data items each of which is defined in its own DDE:

freight_integrity

cv_freight_location

This data flow contains freight location data. The data flow consists of the following data item that is defined in its own DDE:

freight_equipment_location

cv_freight_maintenance

This data flow contains data regarding wear items on freight equipment attached to a commercial vehicle, such as brakes, tires, etc., from which maintenance plans are developed. The data flow consists of the following data items each of which is defined in its own DDE:

freight_maintenance

cv_freight_operations

This data flow contains information regarding the availability of freight equipment attached to a commercial vehicle. It provides information regarding load status (i.e. trailer empty), chassis status (i.e. chassis bare) and other indicators that determine the

availability of freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

freight_operations

cv_fuel_purchase_cost
This data flow is used within the Manage Commercial Vehicles function. It contains the cost of a quantity of fuel purchased for a commercial vehicle. The quantity of fuel purchased together with the time and date are stored in separate data flows. This data flow consists of the following data item which is defined in its own DDE:

cost

cv_fuel_purchase_data
This data flow is used within the Manage Commercial Vehicles function. It contains details of the quantity and cost of fuel purchased for a commercial vehicle. The number of miles recorded by the vehicle, the time and the date are stored in separate data flows. This data flow consists of the following data items each of which is defined in its own DDE:

cv_fuel_purchase_cost
+ cv_fuel_purchase_quantity

cv_fuel_purchase_quantity
This data flow contains the quantity of fuel purchased for a commercial vehicle. The cost of this quantity of fuel together with the time and date are stored in separate data flows.

cv_general_decision
This data flow is used to indicate that a commercial vehicle is to be pulled in regardless of whether or not it has precleared its permits and duties or has passed a safety check. It contains the following data item which is defined in its own DDE:

cv_general_pull-in

cv_general_input_message
This data flow is used within the Manage Commercial Vehicle function and contains data which can be set up by the commercial vehicle driver, sent from the vehicle and output directly by the commercial vehicle fleet manager. The data is used to convey general information.

cv_general_output_message
This data flow is used within the Manage Commercial Vehicle function and contains a string of alphanumeric data which can be set up by the commercial fleet manager, sent to the vehicle and output directly by the commercial vehicle driver. The data is used to convey general information and may be used instead of a voice link.

cv_general_override
This data flow is used within the Manage Commercial Vehicle function. It indicates that the commercial vehicle roadside facility operator has placed an override on any pull-in/pass decisions. It contains the following data items each of which is defined in its own DDE:

cv_general_pull-in

cv_general_pull_in_output
This data flow is used within the Manage Commercial Vehicles function to indicate a general pull-in request for all commercial vehicles, or a pull-in request for one particular vehicle because of a problem with reading some or all of its on-board tag data. It contains the following data items, each of which is defined in its own DDE:

cv_vehicle_number
+ cv_general_pull-in

cv_general_pull-in
This data flow is used within the Manage Commercial Vehicles function. If it is set a commercial vehicle is to be pulled in because it cannot be identified, otherwise it means the pull-in decision can be taken by other processes.

cv_get_on_board_data
This is a request for on-board data carried by a commercial vehicle, from the roadside inspection process. This could be an electronic message, manual activation, or a command to send a notification for an wireless roadside inspection (WRI) trigger area.

cv_hazmat_alarm
This data flow contains information about a commercial vehicle that has been detected at the roadside to have non-permitted security sensitive hazmat characteristics. This consists of the following item which is defined in its own DDE:

cv_screening_data

cv_identities
This data flow contains the identification information for a commercial vehicle, driver and freight equipment. This data flow consists of the following data item which is defined in its own DDE:

driver_identity
+ freight_equipment_id

+ vehicle_identity

cv_identity_details

This data flow is used within the Manage Commercial Vehicles function and contains data on carrier, driver, and vehicle identities which is used by many processes. It consists of the following data items each of which is defined in its own DDE:

carrier_identity
+ driver_identity
+ vehicle_identity

cv_incident_override

This data flow is used within the Manage Traffic function to transfer data about changes in traffic control strategy to accommodate the passage of a commercial vehicle with a special load. A special load is one which either contains hazardous material (HAZMAT load) or has some other special characteristics, e.g. over size, over weight, etc. The data flow consists of the following data items each of which is defined in its own DDE:

permit_type
+ permit_route_plan
+ permit_traffic_controls

cv_incidents_for_other_TMC

This data flow is used within the Manage Traffic function and contains data about the route for a commercial vehicle that is carrying an abnormal load where that route goes outside the road and highway network covered by the local TMC. An abnormal load is defined as being one for which some kind of movement permit is needed. It may be that it is either over dimensioned (width, height, weight, etc.) or contains hazardous material (HAZMAT). The data will be sent to the TMC(s) serving the links that are not controlled by the local TMC to enable it(them) to set up any special traffic control strategies to minimize the disruption to traffic as the load passes through the network. The data flow consists of the following data items each of which is defined in its own DDE:

permit_coordination

cv_inspection_activities_data

This data flow contains a record of the inspection activities that have been carried out on the commercial vehicle.

cv_inspection_data

This data flow is used within the Manage Commercial Vehicles function and contains the results of a roadside vehicle check which are to be down loaded for storage on-board the vehicle. The data may be eventually retrieved by the driver, the commercial vehicle fleet manager, or at a subsequent roadside inspection.

cv_inspection_data_output

This data flow is used within the Manage Commercial Vehicle function and contains the results of the commercial vehicle roadside inspection. These are down loaded for storage on-board the vehicle.

cv_inspection_data_update

This data flow is used within the Manage Commercial Vehicle function and contains the results of an inspection either at the commercial vehicle roadside checkstation facility or elsewhere by an inspector using a hand held terminal. This data is loaded into the vehicle's on-board store for later retrieval by the commercial fleet manager, commercial vehicle driver, or by an inspector at another commercial vehicle roadside checkstation facility.

cv_inspection_results

This data flow is used to indicate the results of any commercial vehicle roadside inspections. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ cv_roadside_report

cv_inspector_safety_data_input

This data flow is used within the Manage Commercial Vehicles function and contains data that is input by an inspector using a hand held terminal. This data will be associated with the roadside inspection of a commercial vehicle and may include extra comments on things not found by the inspection process, or recommendations for remedial action, where problems have been found.

cv_local_route_restrictions

This data flow contains locally determined road segments and areas (surrounded by road segments) that do not allow the transport of security sensitive hazmat cargoes or may indicate other restrictions (such as height or weight limits). The data flow consists of the following items each of which is defined in its own DDE:

hazmat_route_restrictions
+ current_asset_restrictions

cv_location

This data flow contains the vehicle location data for use in reporting commercial vehicle on-board data. The data flow consists of the following data item which is defined in its own DDE:

vehicle_identity

+ vehicle_location_for_cv

cv_lock_tag_data

This data flow is used within the Manage Commercial Vehicles function and contains the current contents of a lock tag output in response to a previous request from a commercial vehicle roadside checkstation facility. This tag is used to control access to the cargo being carried across a border by a commercial vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

cv_customs_inspector_identity
+ date
+ time

cv_log_data

This data flow is used within the Manage Commercial Vehicles function. It contains identification data for each entry in the vehicle details section of the data archived on-board or at a roadside checkstation facility. The data flow consists of the following data items each of which is defined in its own DDE:

cv_driver_number
+ cv_log_entry_date
+ cv_log_entry_location
+ cv_log_entry_mileage
+ cv_log_entry_time

cv_log_entry_date

This data flow is used within the Manage Commercial Vehicles function. It contains the date on which an entry was made into the store of vehicle activity. The data flow consists of the following data item which is defined in its own DDE:

date

cv_log_entry_location

This data flow is used within the Manage Commercial Vehicles function. It contains the location of the commercial vehicle when data was loaded into the store of its activities. The data flow consists of the following data item which is defined in its own DDE:

vehicle_location_for_cv

cv_log_entry_mileage

This data flow contains the vehicle mileage at which an entry was made into the store of vehicle activity as this is typical of many commercial vehicles.

cv_log_entry_time

This data flow is used within the Manage Commercial Vehicles function. It contains the time at which an entry was made into the store of vehicle activity. The data flow consists of the following data item which is defined in its own DDE:

time

cv_maintenance_data

This data flow contains data on the need for maintenance of an individual commercial vehicle based on its current condition. This maintenance work will be in addition to the maintenance that is scheduled to take place because the vehicle has covered a proscribed number of miles, or has achieved a certain age. It consists of the following data items each of which is` defined in its own DDE:

cv_on_board_data
+ cv_maintenance_date
+ cv_maintenance_mileage
+ cv_maintenance_required

cv_maintenance_date

This data flow is used within the Manage Commercial Vehicles function. It contains the date on which a maintenance activity on a particular vehicle must take place. The data flow consists of the following data item which is defined in its own DDE:

date

cv_maintenance_mileage

This data flow contains the mileage at which a maintenance activity on a particular commercial vehicle must take place.

cv_maintenance_request

This data flow is used within the Manage Commercial Vehicles function. It contains a request for the output of vehicle maintenance data to the commercial vehicle fleet manager from the store of this data. The data flow consists of the following data item which is defined in its own DDE:

vehicle_identity

cv_maintenance_required

This data flow contains a brief description of the maintenance activity that must take place on a particular commercial vehicle.

cv_maintenance_schedule

This data flow contains the schedule for the maintenance of an individual commercial vehicle. It consists of the following data items each of which is defined in its own DDE:

cv_maintenance_schedule_date
+ cv_maintenance_schedule_mileage
+ cv_maintenance_schedule_activity

cv_maintenance_schedule_activity

This data flow contains a brief description of the maintenance activity that is to be carried out on a commercial vehicle, either when it achieves a particular mileage, or an a particular date.

cv_maintenance_schedule_date

This data flow is used within the Manage Commercial Vehicles function. It contains the date on which maintenance activity must take place on a commercial vehicle. This date will be related to the date of manufacture of the vehicle and will ensure that if the vehicle covers no more than the expected number of miles it will be serviced on particular dates. Vehicles exceeding the expected mileage will be serviced on a miles covered basis, which is stored in a separate data flow within the store of the maintenance schedules. The data flow consists of the following data item which is defined in its own DDE:

date

cv_maintenance_schedule_mileage

This data flow contains the mileage at which maintenance activity must take place on a commercial vehicle. This will be the number of miles that the vehicle has covered since manufacture and will ensure that if is regularly maintained if its mileage exceeds that which is expected. Those vehicles covering no more than the expected mileage will be serviced on particular dates, which are defined in a separate data flow.

cv_manual_pull-in

This data flow is to show that a manual pull-in is required. If set it means that the commercial vehicle roadside facility operator has invoked a manual pull-in, and all commercial vehicles are to be pulled in, otherwise it means only pull in when requested be the preclearance or safety processes or an operator override.

cv_not_pulled_in

This data item contains a flag which if set shows that potentially there will be the need to pull in a commercial vehicle because of a problem.

cv_on_board_border_data

This data flow is used within the Manage Commercial Vehicles function. It contains the results of screening of a commercial vehicle's credentials at the commercial vehicle roadside border crossing facilities that it has passed by along its route. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{cv_on_board_border_details
    + cv_credentials_details}

cv_on_board_border_details

This data flow is used within the Manage Commercial Vehicles function. It contains the details of the results of the screening of a commercial vehicle at a commercial vehicle roadside border crossing facility. The data flow consists of the following data items each of which is defined in its own DDE:

cv_roadside_facility_identity
+ cv_border_pull_in_output
+ cv_vehicle_weight
+ time

cv_on_board_border_record

This data flow is used within the Manage Commercial Vehicles function. It contains the results of the of the border clearance checks at a commercial vehicle roadside border crossing facility. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_on_board_border_details

cv_on_board_data

This data flow is used within the Manage Commercial Vehicles function to send on-board commercial vehicle data from the vehicle to a commercial vehicle roadside facility. It contains the following data items each of which is defined in its own DDE:

cv_credentials
+ cv_credentials_details
+ cv_driver_number
+ cv_driver_credentials
+ cv_driver_identity_characteristic_key
+ cv_driver_license_citations
+ cv_fuel_purchase_data

+ cv_identity_details
+ cv_inspection_data
+ cv_inspection_activities_data
+ cv_log_data
+ cv_not_pulled_in
+ cv_repairs_and_service_records
+ cv_safety_systems_diagnostics_results
+ cv_vehicle_log
+ freight_equipment_id
+ vehicle_location_for_cv
+ cv_disable

cv_on_board_data_current_copy

This data flow is used within the Manage Commercial Vehicle function and contains a copy of the data currently loaded in the on-board commercial vehicle data store. It is for output to the inspector who made the request for output of the data. The data flow consists of the following data item which is defined in its own DDE:

cv_on_board_data

cv_on_board_data_needed

This data flow is used within the Manage Commercial Vehicle function and contains a request from an inspector either at a commercial vehicle roadside checkstation facility or elsewhere using a hand held terminal for output of the data currently loaded into a commercial vehicle's on-board data store. The data will be used as input to the safety inspection process.

cv_on_board_data_output

This data flow is used within the Manage Commercial Vehicle function and contains a copy of the data currently loaded in the on-board commercial vehicle data store. It is for output to the commercial vehicle fleet manager or driver who made the request for output of the data. The data flow consists of the following data item which is defined in its own DDE:

cv_on_board_data

cv_on_board_data_required

This data flow is used within the Manage Commercial Vehicle function and contains a request from a commercial vehicle fleet manager or driver for output of the data currently loaded into a commercial vehicle's on-board data store. The data will be sent to the requesting manager or driver when it has been retrieved.

cv_on_board_data_update

This data flow is used within the Manage Commercial Vehicle function and contains updates to the data held in the on-board commercial vehicle data store. These updates are provided by the process that analyzes the data obtained from inputs on-board the vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_driver_number
+ cv_driver_credentials
+ cv_driver_identity_characteristic_key
+ cv_driver_license_citations
+ cv_fuel_purchase_data
+ cv_inspection_data
+ cv_inspection_activities_data
+ cv_log_data
+ cv_repairs_and_service_records
+ cv_safety_systems_diagnostics_results
+ cv_vehicle_log
+ freight_equipment_id
+ vehicle_identity
+ vehicle_location_for_cv
+ cv_disable

cv_on_board_driver_data

This data flow contains the declared identity of a commercial vehicle driver determined by on-board equipment. This data flow consists of the following data item which is defined in its own DDE:

driver_identity

cv_on_board_pull_in_output

This data flow is used in the Manage Commercial Vehicles function and contains the output result of the commercial vehicle safety or screening processes, in terms of a pull-in or pass decision for the vehicle, or a general pull-in pass decision for all vehicles, or a pull-in decision based on a problem with reading the vehicle's tag. It consists of the following data items, each of which is defined in its own DDE:

[cv_general_pull-in
| cv_screening_pull_in_output
| cv_safety_pull_in_output
| cv_border_pull_in_output]

cv_on_board_screening_data

This data flow is used within the Manage Commercial Vehicles function. It contains the results of screening of a commercial vehicle's credentials at the commercial vehicle roadside checkstation facilities that it has passed by along its route. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{cv_on_board_screening_details}

cv_on_board_screening_details

This data flow is used within the Manage Commercial Vehicles function. It contains the details of the results of the screening of a commercial vehicle's credentials at a commercial vehicle roadside checkstation facility. The data flow consists of the following data items each of which is defined in its own DDE:

cv_cargo_status
+ cv_out_of_service_status
+ cv_roadside_facility_identity
+ cv_screening_pull_in_output
+ cv_screening_override
+ cv_vehicle_axle_weight_data
+ cv_vehicle_weight
+ time

cv_on_board_screening_record

This data flow is used within the Manage Commercial Vehicles function and contains the results of the screening of a commercial vehicle at a particular commercial vehicle roadside checking facility. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_on_board_screening_details

cv_on_board_stored_data

This data store is used within the Manage Commercial Vehicles function and contains data collected and/or stored on-board a commercial vehicle. The data store consists of the following data items of data each of which is defined in its own DDE:

cv_on_board_data

cv_on_board_stored_sensor_data

This data store is used within the Manage Commercial Vehicles function to store data obtained from sensors on-board the commercial vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

cvo_on_board_sensor_data

cv_on_board_tag_data

This data flow is used within the Manage Commercial Vehicles function. It contains on-board commercial vehicle data that is loaded into a tag. The credentials data is loaded by either the commercial fleet manager or the commercial vehicle driver. The screening data is loaded by each commercial vehicle roadside checkstation facility that the vehicle passes on its route. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_on_board_border_data
+ cv_on_board_screening_data
+ cv_trip_identity
+ tag_identity

cv_on_board_vehicle_data

This data flow is used within the Manage Commercial Vehicle function and contains data collected on-board a commercial vehicle output of which has been requested by the commercial vehicle driver. It consists of the following data items each of which is defined in its own DDE:

cv_on_board_data
+ vehicle_location_for_cv

cv_operator_override

This data flow is used within the Manage Commercial Vehicles function. It contains the roadside facility operator override action.

cv_out_of_service_status

This data flow contains the out of service status of the driver and the vehicle.

cv_output_on_board_vehicle_data

This data flow is used within the Manage Commercial Vehicle function and contains a request from the commercial vehicle driver for the data collected on-board a commercial vehicle to be output to the commercial vehicle fleet manager. This request will only apply to data in the commercial vehicle from which the request was made, i.e. a driver cannot remotely request input of data from another vehicle.

cv_payment_confirmed
This data flow is used within the Manage Commercial Vehicles function and contains the confirmation that payment for enrollment by the financial institution has been accepted.

cv_provide_credentials_data_for_inspections
This data flow is used within the Manage Commercial Vehicles function and contains the commercial vehicle's credentials data. This data flow makes that data available for downloading to the roadside as part of the on-board vehicle safety data requested by an inspector using a hand held terminal. This data flow consists of the following data item which is defined in its own DDE:

cv_credentials_details

cv_provide_enrollment_data
This data flow is used within the Manage Commercial Vehicles function and is a request for a remote commercial vehicle administration system (Other CVAS) to provide data needed for the enrollment of a commercial vehicle, its driver and the carrier.

cv_received_vehicle_data
This data store is used within the Manage Commercial Vehicles function. It contains the data that has been collected from on-board a commercial vehicle and is available for subsequent output to the commercial vehicle driver who is acting in the role of commercial vehicle fleet manager. The data will only relate to the vehicle from which the request to up-load the data was made. It consists of the following data items each of which is defined in its own DDE:

cv_on_board_data
+ cv_general_input_message

cv_remote_enrollment_confirmation
This data flow is used within the Manage Commercial Vehicles function and provides confirmation that a commercial vehicle, its driver and carrier have been enrolled by a remote commercial vehicle administration system (Other CVAS).

cv_remote_enrollment_request
This data flow is used within the Manage Commercial Vehicles function and contains a request for a commercial vehicle, its driver and carrier to be enrolled by a remote commercial vehicle administration system (Other CVAS).

cv_remote_route_restrictions
This data flow contains road segments and areas (surrounded by road segments) that have been remotely determined by other agencies. These segments and areas do not allow the transport of security sensitive hazmat cargoes or may indicate other restrictions (such as height or weight limits). The data flow consists of the following items each of which is defined in its own DDE:

hazmat_route_restrictions
+ current_asset_restrictions

cv_repairs_and_service_records
This data item contains a record of the repair and service work carried out on a commercial vehicle.

cv_request_electronic_clearance_data
This data flow is used within the Manage Commercial Vehicles function. It contains a request from a commercial vehicle roadside checkstation or border crossing facility for the output of the current contents of a commercial vehicle's tag, plus the electronic lock tag, if one is being carried by the vehicle.

cv_request_electronic_screening_data
This data flow is used within the Manage Commercial Vehicles function and contains a request for identification data to support electronic screening.

cv_request_enrollment_data
This data flow is used within the Manage Commercial Vehicles function and contains a request for data to enable a commercial vehicle, its driver and carrier to be enrolled by a remote commercial vehicle administration system (Other CVAS).

cv_request_lock_tag_data
This data flow is used within the Manage Commercial Vehicles function and contains a request for the current contents of a lock tag issued as part of the request for electronic tag data from a commercial vehicle roadside checkstation facility. This tag is used to control access to the cargo being carried across a border by a commercial vehicle.

cv_request_on_board_vehicle_data
This data flow is used within the Manage Commercial Vehicle function and contains a request from the commercial vehicle driver for the commercial vehicle to output the on-board data it has collected, plus any general message data from the driver. The data flow consists of the following data item which is defined in its own DDE:

cv_on_board_data_required

cv_request_vehicle_data
This data flow is used within the Manage Commercial Vehicles function. It contains a request for output of the data that has been collected from on-board a commercial vehicle for output to the commercial vehicle driver who is acting in the role of commercial vehicle fleet manager.

cv_retained_roadside_activity_data

This data flow contains data from the commercial vehicle roadside checkstation and border crossing facilities about the activities of vehicles in the fleet. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{cv_roadside_activity_details}

cv_roadside_activity_details

This data flow is used within the Manage Commercial Vehicles function. It contains activity data from the commercial vehicle roadside checkstation facility for a particular carrier, driver and vehicle combination. The data flow consists of the following data items each of which is defined in its own DDE:

cv_archived_safety_data
+ cv_archived_inspection_data
+ cv_border_record
+ cv_screening_record
+ date

cv_roadside_activity_report_frequency

This data flow is used within the Manage Commercial Vehicles function and contains the frequency at which reports of the activities of a particular combination of carrier, driver, and vehicle at all (or some) roadside facilities are to be output to the manage commercial fleet processes.

cv_roadside_border_database

This data store is used within the Manage Commercial Vehicles function and contains the 'real-time' list of commercial vehicle credentials that is used by commercial vehicle roadside checkstation facility to screen passing commercial vehicles. It is updated periodically with data from a commercial vehicle administration process from its master list of credentials for enrolled vehicles.

list_size
+ list_size{cv_credentials_details
    + cvo_transportation_border_clearance
    + cvo_border_agency_clearance_results
    + cv_trip_identity}

cv_roadside_collected_data

This data store is used within the Manage Commercial Vehicles function and contains the data collected from a commercial vehicle. It consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_driver_details
+ cv_safety_status_code
+ cv_vehicle_details
+ cv_not_pulled_in

cv_roadside_credentials_database

This data store is used within the Manage Commercial Vehicles function and contains the 'real-time' list of commercial vehicle credentials that is used by commercial vehicle roadside checkstation facility to screen passing commercial vehicles. It is updated periodically with data from a commercial vehicle administration process from its master list of credentials for enrolled vehicles.

list_size
+ list_size{cv_credentials_details
    + cv_credentials_status_code
    + cv_trip_classification_data}

cv_roadside_daily_log

This data flow is used within the Manage Commercial Vehicles function. It contains a copy of the daily log of all the activities that have taken place at a commercial vehicle roadside checkstation facility. This data is analyzed to determine problem vehicles, drivers and carriers for future pull-in requests. The data flow consists of the following data items each of which is defined in its own DDE:

cv_roadside_facility_identity
+ cv_roadside_record
+ date

cv_roadside_data_collected

This data flow is used within the Manage Commercial Vehicles function. It contains a a record of the vehicles, their carriers, and their operators that have been detected at a commercial vehicle roadside checkstation facility. The data flow consists of the following data items each of which is defined in its own DDE:

cv_roadside_facility_identity
+ list_size
+ list_size{cv_vehicle_number
+ cv_carrier_number
+ cv_driver_number}

cv_roadside_data_for_admin

This data flow is used within the Manage Commercial Vehicle function. It contains data that is being sent from the commercial vehicle roadside checkstation facility to the commercial vehicle trips and clearances administration facility. The data flow consists of the following data items each of which is defined in its own DDE:

cv_roadside_daily_log
+ cvo_border_clearance
+ cvo_citation_data
+ cvo_violation
+ cv_roadside_safety_data_for_admin
+ cv_roadside_driver_logs_for_admin
+ cv_roadside_data_collected

cv_roadside_data_for_vehicle

This data flow is used within the Manage Commercial Vehicle function. It contains data that is being sent from a commercial vehicle roadside checkstation or border crossing facility to the commercial vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

cv_on_board_border_record
+ cv_request_electronic_clearance_data
+ cv_request_electronic_screening_data
+ cv_on_board_screening_record
+ cvo_border_clearance_request
+ cvo_request_tag_data
+ cvo_safety_inspection_request

cv_roadside_driver_logs_for_admin

This data flow is used within the Manage Commercial Vehicles function to send a collection of commercial vehicle driver logs from a roadside inspection facility. It contains detailed log information showing hours in service. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{cv_log_data}

cv_roadside_facility_address

This data item contains the address at which the roadside facility can be contacted, e.g. wide area network address.

cv_roadside_facility_identity

This data item contains the identity of the commercial vehicle roadside checking facility. This data flow enables a unique set of alphanumeric characters to be used while it provides the option of grouping identities by State and/or area(s) within a State.

cv_roadside_facility_locations

This data store is used within the Manage Commercial Vehicles functions and contains the commercial vehicle roadside checkstation facilities location data. It consists of the following data item which is defined in its own DDE:

cv_roadside_facility_locations_data

cv_roadside_facility_locations_data

This data flow is used within the Manage Commercial Vehicles functions and contains a the location of each commercial vehicle roadside checkstation facility. The location is stored as the route segment identity on which the facility is located. The data is used by the vehicle enrollment process. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{cv_roadside_facility_identity
    + cv_roadside_facility_address
    + route_segment_identity
    + location_identity}

cv_roadside_facility_log

This data store is used within the Manage Commercial Vehicles function and contains a log of all the activities that may be taking place at an individual commercial vehicle roadside checkstation facility. It consists of the following items of data each of which is defined in its own DDE:

list_size
+ list_size{date
    + cv_archived_safety_data
    + cv_archived_inspection_data
    + cv_screening_record
    + cv_border_record
    + time}

cv_roadside_inspection_configuration

This data flow is used within the Manage Commercial Vehicles function and defines the wireless roadside inspection (WRI)

trigger areas for a commercial vehicle enforcement activity, including locations, times, and items of focus, including targeted lists of carriers, vehicles, drivers, cargo types, permit classifications, etc. to watch for.

cv_roadside_inspection_control
This data flow is used within the Manage Commercial Vehicles function to send control commands to roadside facilities. This control includes the start, end, and other parameters for commercial vehicle enforcement activities within a certain pre-configured wireless roadside inspection (WRI) trigger area.

cv_roadside_operator_data_request
This data flow is used within the Manage Commercial Vehicles function and contains a request for output of data from the commercial vehicle roadside facility log to the commercial vehicle inspector.

cv_roadside_operator_output
This data flow is used within the Manage Commercial Vehicles function and contains the output requested from the commercial vehicle roadside facility log by the commercial vehicle inspector. It consists of the following data item which is defined in its own DDE:

cv_roadside_facility_log

cv_roadside_periodic_activity_data
This data flow contains activity data from the commercial vehicle roadside checkstation facility for a particular carrier, driver and vehicle combination. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{cv_roadside_activity_details}

cv_roadside_record
This data flow is used within the Manage Commercial Vehicles function. It contains a copy of the details of the activities that have been logged at a commercial vehicle roadside checkstation facility. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{cv_archived_safety_data
    + cv_archived_inspection_data
    + cv_screening_record}

cv_roadside_report
This data flow is used within the Manage Commercial Vehicles function and contains the results data from a commercial vehicle roadside inspection. If set to null there was no data available from which to carry-out the inspection.

cv_roadside_safety_data
This data store is used within the Manage Commercial Vehicles function and contains the data collected from commercial vehicles at a commercial vehicle roadside checking facility. It consists of the following data items each of which is defined in its own DDE:

cv_driver_details
+ cv_safety_status_code
+ cv_vehicle_details
+ cvo_citation_info
+ cvo_accident_report

cv_roadside_safety_data_for_admin
This data flow is used within the Manage Commercial Vehicles function to send a collection of commercial vehicle safety data from a roadside inspection facility. It contains the following data items each of which is defined in its own DDE:

list_size
+ list_size{cv_credentials
+ cv_credentials_details
+ cv_driver_number
+ cv_driver_credentials
+ cv_driver_identity_characteristic_key
+ cv_driver_license_citations
+ cv_fuel_purchase_data
+ cv_identity_details
+ cv_inspection_data
+ cv_inspection_activities_data
+ cv_log_data
+ cv_not_pulled_in
+ cv_repairs_and_service_records
+ cv_safety_systems_diagnostics_results
+ cv_vehicle_log
+ freight_equipment_id
+ vehicle_location_for_cv
+ cv_disable}

cv_roadside_safety_database

This data store is used within the Manage Commercial Vehicles function and contains the vehicle safety database for a commercial vehicle roadside checking facility. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{cv_roadside_safety_data}

cv_roadside_safety_database_update

This data flow is used within the Manage Commercial Vehicles function and contains the update to data in the safety database held by the commercial vehicle roadside checkstation facility. It consists of the following data item which is defined in its own DDE:

cv_roadside_safety_data

cv_roadside_single_activity_data

This data flow contains activity data from the commercial vehicle roadside checkstation facility for a particular carrier, driver and vehicle combination. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{cv_roadside_activity_details}

cv_route

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Commercial Vehicles function. It contains details of a dynamic route provided for a commercial vehicle the request for which originated with the commercial vehicle driver acting in the role of fleet manager. The data flow consists of the following data items each of which is defined in its own DDE:

cv_route_data
+ vehicle_identity

cv_route_data

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Commercial Vehicles function. It contains data for routes that have been selected for a commercial vehicle based on the data provided in the request from the Manage Commercial Vehicles function. The data flow consists of the following items each of which is defined in its own DDE:

route_cost
+ route_list
+ route_start_time
+ route_statistics
+ route_segment_number{route_segment_commercial_details}

cv_route_details

This data store is used within the Manage Commercial Vehicle function to hold data about commercial vehicle routes used by the commercial vehicle driver. It consists of the following data items each of which is stored in its own DDE:

cv_route_number
+ cv_taxes_and_duties
+ cv_route_data
+ route_type

cv_route_input

This data flow is sent from the Manage Commercial Vehicle function to the Provide Driver and Traveler Services function and contains route and vehicle location data. It consists of the following data items each of which is defined in its own DDE:

cf_route_request
+ cv_route_request

cv_route_monitoring_status

This data flow contains information regarding a commercial vehicle's adherence to its intended route. The data flow consists of the following items each of which is defined in its own DDE:

cv_route_data
+ route_monitoring_parameters
+ vehicle_identity
+ vehicle_location_for_cv
+ time
+ date

cv_route_number

This data flow is used within the Manage Commercial Vehicle function and contains the number of the commercial vehicle route. It is used to associate other items of data such as taxes and duties, route details, classes, etc.

cv_route_outputs

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Commercial Vehicle function. It

consists of the following data items each of which is defined in its own DDE:

cf_route
+ cv_route

cv_route_request

This data flow is sent from the Manage Commercial Vehicles function to the Provide Driver and Traveler Services function. It is used to request the preparation of a dynamic route for a commercial vehicle and originates with the commercial vehicle driver acting in the role of fleet manager. The data flow consists of the following items each of which is defined in its own DDE:

constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_load_classification
+ constraint_on_avo_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type
+ destination
+ departure_time
+ desired_arrival_time
+ modes
+ origin
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ preferred_weather_conditions
+ vehicle_identity

cv_route_restrictions

This data flow contains information about road segments and areas (surrounded by road segments) that do not allow the transport of security sensitive hazmat cargoes or may indicate other restrictions (such as height or weight limits). These segments and areas may be any combination of locally and remotely identified links and areas. The data flow consists of the following data item which is defined in its own DDE:

hazmat_route_restrictions
+ current_asset_restrictions

cv_route_warning

This data flow contains route monitoring data from a commercial vehicle that has deviated beyond the acceptable limits of its intended route. The data flow consists of the following data item each of which is defined in its own DDE:

cv_route_monitoring_status

cv_route_warning_for_driver

This data flow contains route monitoring data from a commercial vehicle that has deviated beyond the acceptable limits of its intended route. The data flow consists of the following data item each of which is defined in its own DDE:

cv_route_monitoring_status

cv_safety_data

This data flow is used within the Manage Commercial Vehicles function and contains commercial vehicle identification and characteristics data for initiating safety checking at the commercial vehicle roadside check facility. It consists of the following data items each of which is defined in its own DDE:

cv_electronic_screening_data
+ cvo_safety_inspection
+ cv_vehicle_characteristics

cv_safety_data_request

This data flow is used within the Manage Commercial Vehicles function and contains a request from the commercial vehicle roadside checkstation inspector for output of data held in the facility safety database. The data to be output is specified in terms of a carrier, driver and/or vehicle number. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_safety_information_request_type

cv_safety_data_response

This data flow is used within the Manage Commercial Vehicles function and contains the output resulting from a request by the commercial vehicle roadside checkstation inspector for output of some data from the facility safety database. The data to be output will have been specified by the inspector in terms of a carrier, driver and/or vehicle number. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_safety_information

cv_safety_database_update

This data flow is used within the Manage Commercial Vehicles function and contains data to update the data store containing the safety problem list on a periodic basis (i.e. daily). It contains the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_roadside_safety_data

cv_safety_decision

This data flow is used within the Manage Commercial Vehicle function. It contains the results of an automatic safety check that has been made by a process in the commercial vehicle roadside checkstation facility. This data is sent for output to the roadside inspector interface process, to give the inspector the opportunity to override the automatic decision. The data flow consists of the following data item which is defined in its own DDE:

cv_safety_pull_in_output

cv_safety_history

This data store is used within the Manage Commercial Vehicles function and contains a list of those carriers and vehicles that have been found to have safety problems during an inspection at the roadside commercial vehicle fixed facility. It consists of the following data items each of which is defined in its own DDE:

cv_safety_history_data

cv_safety_history_data

This data flow is used within the Manage Commercial Vehicles function and contains a list of those carriers and vehicles that have been found to have safety problems during an inspection at the roadside commercial vehicle fixed facility. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{cv_credentials_details
    + cv_roadside_facility_identity
    + cv_roadside_safety_data}

cv_safety_information

This data flow is used within the Manage Commercial Vehicles function and contains some commercial vehicle safety data which has been previously requested by the commercial vehicle roadside checkstation inspector. This data will be used by the inspector for checking vehicles as they pass. The data flow consists of the following item of data which is defined in its own DDE:

information_datapage

cv_safety_information_request_type

This data flow is used within the Manage Commercial Vehicles function and contains the type of safety data for which output is requested. This will be able to include such things as driver's health, driver's safety record (citations, etc.), vehicle's safety record, etc.

cv_safety_information_response

This data flow is used within the Manage Commercial Vehicles function and contains the output resulting from a request by the commercial vehicle roadside checkstation inspector for output of some data from the facility safety database. The data to be output will have been specified by the inspector in terms of a carrier, driver and/or vehicle number. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_roadside_safety_data

cv_safety_override

This data flow is used within the Manage Commercial Vehicles function. It contains the decision made by an inspector at a commercial vehicle roadside checkstation facility to override (or not) the automated pass or pull-in decision made by the process responsible for safety checking. The data flow contains the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_safety_override_code

cv_safety_override_code

This data flow is used within the Manage Commercial Vehicles function. It contains a code which gives the results of the decision made by an inspector at a commercial vehicle roadside checkstation facility to override (or not) the automated pass or pull-in decision made by the process responsible for safety checking. The data flow consists of the following data item which is defined in its own DDE:

cv_operator_override

cv_safety_problem

This data flow is used within the Manage Commercial Vehicles function and identifies the nature of a problem with the safety of a commercial vehicle, its driver, or the carrier in general.

cv_safety_pull_in_output

This data flow is used in the Manage Commercial Vehicles function and contains the output of the result of an analysis of the data from a commercial vehicle that is approaching a roadside checkstation facility, by the process responsible for commercial vehicle safety checking. The result is expressed in terms of a pull-in or pass decision for the vehicle. The data flow consists of the following data items, each of which is defined in its own DDE:

cv_credentials_details
+ cv_safety_problem

cv_safety_status_code

This data flow is used within the Manage Commercial Vehicles function and contains the status of an associated set of commercial vehicle safety data. This status may be clear, or set to indicate that there is a problem.

cv_safety_systems_diagnostics_results

This data item contains flags set to show the results of diagnostic checks run by a commercial vehicle's on-board safety system. Included in these diagnostics are the safety status of the driver, cargo in the attached freight equipment and vehicle (including brake condition).

cv_screening_data

This data flow is used within the Manage Commercial Vehicles function and contains commercial vehicle identification and characteristics data for initiating screening checks at the commercial vehicle roadside check facility. It consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_on_board_screening_data
+ cv_vehicle_characteristics

cv_screening_decision

This data flow is used within the Manage Commercial Vehicle function. It contains the results of an automatic credentials screening check that has been made by a process in the commercial vehicle roadside checkstation facility. This data is sent for output to the roadside inspector interface process, to give the inspector the opportunity to override the automatic decision. The data flow consists of the following data item which is defined in its own DDE:

cv_screening_pull_in_output

cv_screening_override

This data flow is used within the Manage Commercial Vehicles function. It contains the decision made by an inspector at a commercial vehicle roadside checkstation facility to override (or not) the automated pass or pull-in decision made by the process responsible for credentials checking. The data flow contains the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_screening_override_code

cv_screening_override_code

This data flow is used within the Manage Commercial Vehicles function. It contains a code which gives the results of the decision made by an inspector at a commercial vehicle roadside checkstation facility to override (or not) the automated pass or pull-in decision made by the process responsible for credentials checking. The data flow consists of the following data item which is defined in its own DDE:

cv_operator_override

cv_screening_pull_in_output

This data flow is used in the Manage Commercial Vehicles function and contains the output of the result of an analysis of the data from a commercial vehicle that is approaching a roadside checkstation facility, by the process responsible for commercial vehicle credentials checking. The result is expressed in terms of a pull-in or pass decision for the vehicle. The data flow consists of the following data items, each of which is defined in its own DDE:

cv_credentials_details
+ cv_credentials_problem

cv_screening_record

This data flow is used within the Manage Commercial Vehicles function. It contains information that is collected at a roadside checkstation facility as the result of the credentials checks on an approaching commercial vehicle. This data is stored in the log of roadside facility data. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_screening_pull_in_output
+ cv_screening_override
+ time

cv_security_alarm

This data flow contains data about a potential critical security problem(s), including a breach or tamper event, involving a commercial vehicle. The data flow consists of the following data item each of which is defined in its own DDE:

cv_critical_security_problem
+ cv_identity_details

cv_security_systems_diagnostics_results
This data item contains the results of diagnostic checks run by a commercial vehicle's on-board security system. These diagnostics will detect a breach or tamper event of the cab and engine compartment.

cv_special_vehicle_enrollments
This data flow is used within the Manage Commercial Vehicles function. It contains enrollment information for commercial vehicles at roadside facilities. This flow will typically provide information about the carrier or freight forwarder, the vehicle, the driver and the current trip including cargo declaration.

cv_start_inspection
This data flow is used within the Manage Commercial Vehicles function to indicate that a roadside commercial vehicle inspection should be started on a particular commercial vehicle. It contains the following data item which is defined in its own DDE:

cv_credentials_details

cv_static_route_data
This data flow is used within the Manage Commercial Vehicles function. It contains the data for a static based route provided as a result of data provided by the commercial vehicle driver acting as a fleet manager.

cv_static_route_request
This data flow is used within the Manage Commercial Vehicles function. It contains the data from which a static route can be determined for a commercial vehicle and is supplied by the commercial vehicle driver acting as a fleet manager. The data flow consists of the following data items each of which is defined in its own DDE:

constraint_on_acceptable_travel_time
+ constraint_on_avo_lanes
+ constraint_on_eta_change
+ constraint_on_interstate
+ constraint_on_load_classification
+ constraint_on_urban
+ constraint_on_vehicle_type
+ destination
+ departure_time
+ desired_arrival_time
+ modes
+ origin
+ preferred_alternate_routes
+ preferred_route_segments
+ preferred_routes
+ preferred_weather_conditions

cv_storage_action_flag
This data flow contains a storage action flag. This is used for the management of the stores of route data used by the commercial vehicle fleet manager and driver.

cv_tag_data
This data flow is used within the Manage Commercial Vehicles and Provide Electronic Payment Services functions and contains the data read from a commercial vehicle's on-board tag. It consists of the following data items each of which is defined in its own DDE:

cv_carrier_number
+ cv_driver_number
+ cv_vehicle_number

cv_tag_data_store
This data store is used within the Manage Commercial Vehicles function. It contains the on-board vehicle type two tag data that is interrogated by each and every commercial vehicle roadside checkstation facility. The data flow consists of the following data item which is defined in its own DDE:

cv_on_board_tag_data

cv_tag_data_store_needed
This data flow is used within the Manage Commercial Vehicles function and contains a request for the current on-board commercial vehicle tag data to be sent to the process that provides the communications interface with the commercial vehicle roadside checkstation or border crossing facilities. This data flow is sent in response to a request by the facility for the output of the current tag data.

cv_tag_data_store_output
This data flow is used within the Manage Commercial Vehicles function. It contains the output of the data currently being held by a type two commercial vehicle tag as previously requested by the commercial vehicle driver. The data flow consists of the following data item which is defined in its own DDE:

cv_credentials_details
+ cv_trip_identity

cv_tag_data_store_read
This data flow is used within the Manage Commercial Vehicles function. It contains data that is being read from an on-board commercial vehicle type tag in response to a request for data from a commercial vehicle roadside checkstation or border crossing facility. The data flow consists of the following data item which is defined in its own DDE:

cv_on_board_tag_data

cv_tag_data_store_request
This data flow is used within the Manage Commercial Vehicles function and contains a request for the current on-board commercial vehicle tag data to be sent to the process that provides the interface with the commercial vehicle driver. This data flow is sent in response to a request by the driver for the output of the current tag data.

cv_tag_data_store_update
This data flow is used within the Manage Commercial Vehicles function. It contains data that is being updated on an on-board commercial vehicle type tag as a result of data being sent from a commercial vehicle roadside checkstation or border crossing facility. The data flow consists of the following data items each of which is defined in its own DDE:

cv_on_board_border_details
+ cv_on_board_screening_details

cv_tag_data_store_write
This data flow is used within the Manage Commercial Vehicles function and contains on-board commercial vehicle tag data that is being loaded by either the commercial vehicle driver and is used by other processes in the function. The data flow consists of the following data item which is defined in its own DDE:

cv_credentials_details
+ cv_trip_identity
+ tag_identity

cv_tax_and_credential_fees
This data store is used within the Manage Commercial Vehicles function and contains information about the taxes and credential fees required by commercial vehicles to pass through States and cross borders, the account number to which payments should be made, plus a historical record of payments made by carriers (and owner drivers) where problems have occurred, e.g. late or incorrect payment.

cv_taxes_and_duties
This data flow and contains a list of the taxes and duties required for the use of a particular commercial vehicle route using a particular class of vehicle, cargo and weight.

cv_trigger_area_notification
This data flow is used within the Manage Commercial Vehicles function to inform commercial vehicle drivers approaching an enforcement trigger area that wireless roadside inspection (WRI) safety data message collection has been activated.

cv_trip_classification_data
This data flow is used within the Manage Commercial Vehicles function and contains the classification data for which a particular commercial vehicle has been enrolled at commercial vehicle roadside checkstation locations for a particular route. The data flow consists of the following data items each of which is defined in its own DDE:

cv_cargo_class
+ cv_vehicle_class
+ cv_weight_class

cv_trip_identity
This data flow contains a trip identity number for use in checking a commercial vehicle through a border crossing.

cv_update_new_credentials_request
This data flow is used within the Manage Commercial Vehicles function and contains a request to update the credentials for a particular commercial vehicle at the roadside checkstation and border crossing facilities along its route, i.e. to enroll the vehicle, that are served by the local commercial vehicle administration function. The data flow consists of the following data items each of which is defined in its own DDE:

cv_route_details
+ cv_credentials_details
+ cv_trip_classification_data
+ cv_trip_identity
+ hazmat_load_data

cv_update_new_credentials_response
This data flow is used within the Manage Commercial Vehicles function and contains the response to a previous request for a commercial vehicle's credentials and trip classification to be enrolled at all the roadside checkstation facilities along its route. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ cv_route_number

cv_vehicle_axle_weight_data
This data flow contains the details of the number of axles the vehicle has, the weight per axle and the spacing between the axles.

cv_vehicle_characteristics
This data flow is used within the Manage Commercial Vehicles and Provide Electronic Payment Services functions and contains the characteristics of a commercial vehicle as determined from data provided by roadside sensors. It consists of the following data items each of which is defined in its own DDE:

cv_vehicle_weight
+ cv_vehicle_size
+ cv_vehicle_configuration
+ cv_vehicle_hazmat_characteristics

cv_vehicle_class
This data flow contains the vehicle classification for a particular use of a commercial vehicle route.

cv_vehicle_configuration
This data flow defines the commercial vehicle configuration. Examples of data contained in this data flow may include but will not be limited to tractor unit plus articulated trailer (van type), tractor unit only, vehicle plus trailer, the motive power unit may carry payload (van type), tractor unit plus articulated trailer plus trailer (van type), tractor unit plus articulated trailer (tanker type), vehicle plus trailer, i.e. the motive power unit may carry payload (tanker type), and tractor unit plus articulated trailer plus trailer (tanker type).

cv_vehicle_data
This data flow is used within the Manage Commercial Vehicles function. It contains the data that has been collected from on-board a commercial vehicle for output to the commercial vehicle driver who is acting in the role of commercial vehicle fleet manager. The data will only relate to the vehicle from which the request to up-load the data was made. It consists of the following data items each of which is defined in its own DDE:

cv_on_board_data
+ cv_general_input_message

cv_vehicle_data_for_roadside
This data flow is used within the Manage Commercial Vehicle function. It contains data that is being sent from the commercial vehicle to the commercial vehicle roadside checkstation facility. The data flow consists of the following data items each of which is defined in its own DDE:

cv_electronic_clearance_data
+ cv_electronic_screening_data
+ cvo_border_clearance_data
+ cvo_safety_inspection
+ cvo_tag_data

cv_vehicle_details
This data flow is used within the Manage Commercial Vehicles function. It contains details about the activities involving a particular commercial vehicle over a period of time. The vehicle identity for this data is held in an associated data flow. The data flow itself consists of the following data items each of which is defined in its own DDE:

cv_credentials
+ 1{cv_fuel_purchase_data
    + cv_inspection_activities_data
    + cv_log_data
    + cv_repairs_and_service_records
    + cv_safety_systems_diagnostics_results
    + cv_vehicle_log}list_size

cv_vehicle_hazmat_characteristics
This data flow contains the commercial vehicle hazmat characteristics as detected by roadside sensors, such as a nuclear particle sensors or chemical sensors.

cv_vehicle_log
This data flow is used within the Manage Commercial Vehicles function. It contains a log of the commercial vehicle's cargo loading and unloading activities. Data about other activities is stored in separate data flows, as is the date, time, place, driver identity and vehicle mileage when the activity took place. This data flow consists of the following data items each of which is defined in its own DDE:

cv_cargo_loaded
+ cv_cargo_discharged

cv_vehicle_number
This data flow contains an alphanumeric code that is the commercial vehicle identification number.

cv_vehicle_size
This data flow contains the commercial vehicle size as measured by roadside sensors. The data will include details such as the length, width and height of the vehicle. All sizes will be measured in inches.

cv_vehicle_weight
This data flow contains the commercial vehicle weight as measured by roadside sensors, such as weigh-in-motion detectors. The weight will be shown in thousands of pounds.

cv_violation_data
This data flow is sent from the Manage Commercial Vehicles function to the Manage Emergency Services function. It contains details of commercial vehicles that have committed violations at roadside checking facilities. These may be caused by failure to stop, or by failure to provide on-board data, the on-board data itself being in error, or failure of a roadside check. This data flow is made up of the following items each of which is defined in its own DDE:

cvo_citation_data
+ cvo_violation

cv_weight_class
This data flow contains the weight classification for a particular use of a commercial vehicle route.

cvo_accident
This data flow is used within the Manage Commercial Vehicles function and contains information about a commercial vehicle safety accident. This data flow consists of the following data items each of which is defined in its own DDE:

cvo_accident_data

cvo_accident_data
This data flow is used within the Manage Commercial Vehicles function and contains information about a commercial vehicle accident.

cvo_accident_data_for_fleet
This data flow is used within the Manage Commercial Vehicle function. It contains a report for the fleet manager with information about a commercial vehicle safety accident. This data flow consists of the following data item which is defined in its own DDE:

cvo_accident_data

cvo_accident_report
This data flow is used within the Manage Commercial Vehicle function. It contains a report for the roadside inspector with information about a commercial vehicle safety accident. This data flow consists of the following data item which is defined in its own DDE:

cvo_accident_data

cvo_advanced_payments_request
This data flow is sent from the Manage Commercial Fleet Electronic Credentials function to the Provide Electronic Payment Services to request that a toll be paid for in advance by a commercial vehicle fleet operator. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ toll_route_segments
+ vehicle_identity

cvo_advanced_toll_confirmation
This data flow contains data about an advanced toll transaction requested by a commercial vehicle fleet operator and consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ stored_credit
+ toll_cost
+ traveler_identity

cvo_advanced_toll_payment_information
This data flow is sent from the Provide Electronic Payment Services function to the Manage Commercial Fleet Electronic Credentials function and contains data about an advanced toll transaction requested by a commercial vehicle fleet operator and consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ stored_credit
+ toll_cost
+ traveler_identity

cvo_advanced_toll_request

This data flow is sent from the Advanced Toll Payment function to the Manage Commercial Fleet Electronic Credentials function to request that a toll be paid for in advance by a commercial vehicle fleet operator. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ toll_route_segments
+ vehicle_identity

cvo_alarm

This data flow contains the details of security related incidents involving commercial vehicles. These include notifications of significant route deviations and breach or tamper events. The identities of the driver, commercial vehicle and freight equipment which don't match the planned assignment will be flagged. The data flow consists of the following data items each of which is defined in its own DDE:

cv_vehicle_number
+ cv_driver_number
+ cv_identity_details
+ freight_cargo_data
+ freight_equipment_number
+ incident_type
+ vehicle_location_for_cv
+ time
+ date

cvo_audit_data

This data flow is used within the Manage Commercial Vehicle function. It contains information to support a tax audit.

cvo_border_agency_clearance_results

This data flow is used within the Manage Commercial Vehicle function. It contains notification information regarding the granting of permission for commercial freight shipment to enter the United States. It consists of the following data items each of which is defined in its own DDE:

cvo_border_results

cvo_border_clearance

This data flow is used within the Manage Commercial Vehicles function. It contains a copy of the daily log of activities that have taken place at a commercial vehicle border crossing facility, including acceptance or override of system decision. The data flow consists of the following data items each of which is defined in its own DDE:

cv_roadside_facility_identity
+ cv_border_record
+ date

cvo_border_clearance_data

This data flow is used within the Manage Commercial Vehicle function. It contains trip specific data regarding the movement of goods across international borders. The data flow consists of the following data items each of which is defined in its own DDE:

cv_trip_identity
+ cv_on_board_border_data
+ date

cvo_border_clearance_for_fleet

This data flow is used within the Manage Commercial Vehicle function. It contains information about the status of a commercial freight shipment moving across an international border. This data flow consists of the following data items each of which is defined in its own DDE:

cvo_border_clearance_info
+ cvo_border_status_from_other_cvas

cvo_border_clearance_info

This data flow is used within the Manage Commercial Vehicle function. It contains trip specific data regarding the movement of goods across international borders, including the trip identification number. The data flow consists of the following data item which is defined in its own DDE:

cvo_border_clearance

cvo_border_clearance_request

This data flow is used within the Manage Commercial Vehicle function. It contains a request for trip specific data regarding the movement of goods across international borders (including trip identification numbers).

cvo_border_results

This data flow is used within the Manage Commercial Vehicle function. It contains information regarding the granting of permission for commercial freight shipments to enter the U.S.

cvo_border_status_for_other_cvas

This data flow is used within the Manage Commercial Vehicle function. It contains information about the status of a commercial freight shipment moving across an international border. This data flow consists of the following data items each of which is defined in its own DDE:

cvo_border_clearance_info

cvo_border_status_for_trade

This data flow is used within the Manage Commercial Vehicle function. It contains information regarding the border crossing status of a commercial freight shipment. This data flow consists of the following data items each of which is defined in its own DDE:

cvo_border_clearance_info
+ cvo_border_status_from_other_cvas

cvo_border_status_from_other_cvas

This data flow is used within the Manage Commercial Vehicle function. It contains status information from a remote commercial vehicle administration function of a commercial freight shipment moving across an international border served by the local function. This data flow consists of the following data items each of which is defined in its own DDE:

cvo_border_clearance_info

cvo_cargo_data_from_driver

This data flow is used within the Manage Commercial Vehicle function. It contains cargo data that has been input by a commercial vehicle driver for loading into the commercial vehicles log. The data flow consists of the following data items each of which is defined in its own DDE:

cv_cargo_loaded
+ cv_cargo_discharged

cvo_citation

This data flow is used within the Manage Commercial Vehicles function and contains information about a citation received by a commercial vehicle and the references to the statute(s) that was (were) violated. It consists of the following data item each of which is defined in its own DDE:

cvo_citation_data

cvo_citation_data

This data flow is used within the Manage Commercial Vehicles function and contains information about a citation received by a commercial vehicle and references the statute(s) that was (were) violated. A citation has been adjudicated by the courts.

cvo_citation_info

This data flow is used within the Manage Commercial Vehicles function to provide the commercial vehicle roadside checkstation inspector with citation data from the facility safety database.

cvo_credential_status

This data flow is used within the Manage Commercial Vehicles function and provides the detailed status for the credentials of a commercial vehicle or commercial vehicle driver, including registration, licensing, insurance, etc.

cvo_credentials_info

This data flow is used within the Manage Commercial Vehicles function. It contains the list of enrolled commercial vehicle credentials maintained by the commercial vehicle administrative processes and is used to update the roadside safety facilities served by the function. The data flow consists of the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_credentials_status_code
+ cv_trip_classification_data

cvo_credentials_status

This data flow is used within the Manage Commercial Vehicles function and provides roadside facilities with the detailed status for the credentials of a commercial vehicle or commercial vehicle driver, including registration, licensing, insurance, etc.

cvo_credentials_status_for_fms

This data flow is used within the Manage Commercial Vehicles function and provides the carrier with the detailed status for the credentials of a commercial vehicle or commercial vehicle driver, including registration, licensing, insurance, etc.

cvo_database_info

This data flow is used within the Manage Commercial Vehicles function and contains a list of carriers, vehicles and driver numbers that have been enrolled, together with flags to identify any for which there are safety and tax payment problems. It contains clearance results for the granting of permission for a commercial freight shipment to proceed at an international border facility. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{cv_credentials_details
    + cv_trip_classification_data
    + cv_credentials_status_code
    + cvo_transportation_border_results
    + cvo_border_results
    + cv_trip_identity
    + cv_driver_number
    + cv_driver_credentials
    + cv_driver_license_citations
    + cvo_citation_data
    + cvo_violation
    + cv_driver_identity_characteristic_key}

cvo_database_info_request
This data flow is used within the Manage Commercial Vehicles function and is a request for credential enrollment information to be used by the roadside checkstation or border crossing facility.

cvo_declaration_info
This data flow is used within the Manage Commercial Vehicle function. It contains information regarding a pending commercial freight shipment into the U.S.

cvo_domestic_transportation_info_for_trade
This data flow is used within the Manage Commercial Vehicle function. It contains real-time or near real-time data for trade regarding transportation activity that is potentially categorized by shipper classification, carrier, commodity, etc.

cvo_domestic_transportation_info_from_trade
This data flow is used within the Manage Commercial Vehicle function. It contains real-time or near real-time data from trade regarding trade transportation activity that is potentially categorized by shipper classification, carrier, commodity, etc.

cvo_driver_assignment_data
This data flow contains information about a commercial vehicle driver assigned to a specific route. The data flow consists of the following data items each of which is defined in its own DDE:

cv_driver_number
+ cv_driver_identity_characteristic_key
+ cv_route_number

cvo_driver_log
This data flow is used within the Manage Commercial Vehicle function. It contains detailed log information showing hours in service for the current driver. The data flow consists of the following data items each of which is defined in its own DDE:

cv_log_data

cvo_driver_record_info
This data flow is used to provide the Manage Commercial Vehicle Fleet process with information concerning a commercial vehicle driver. This flow is made up of the following items each of which is defined in its own DDE:

cv_driver_number
+ cv_driver_credentials
+ cv_driver_license_citations
+ cvo_citation_data
+ cvo_violation
+ cv_driver_identity_characteristic_key

cvo_driver_record_to_roadside
This data flow is used within the Manage Commercial Vehicles function to provide information concerning the driver of a commercial vehicle to facilities located at the roadside. This flow is made up of the following items each of which is defined in its own DDE:

cv_driver_number
+ cv_driver_credentials
+ cv_driver_license_citations
+ cvo_citation_data
+ cvo_violation
+ cv_driver_identity_characteristic_key

cvo_general_message
This data flow is used within the Manage Commercial Vehicle function and contains general information for a commercial vehicle or driver. The data flow consists of the following data items each of which is defined in its own DDE:

cv_general_input_message

cvo_hazmat_spill_data

This data flow is used within the Manage Commercial Vehicle function. It contains information from cargo sensors detecting a hazardous spill as well as vehicle location and carrier identification.

cv_identity_details
+ vehicle_location_for_cv

cvo_inspection_configuration

This data flow is used within the Manage Commercial Vehicles function to establish and configure trigger areas for wireless roadside inspection (WRI) including locations, types of vehicles, time frames, and targeted carriers, vehicle operators, or vehicles.

cvo_on_board_data_for_roadside

This data flow provides data collected from on-board a commercial vehicle to systems located along the roadside. This consists of the following items each of which is defined in its own DDE:

cvo_driver_log
+ cv_on_board_data
+ stored_driver_identity_characteristics
+ freight_info_for_inspection
+ cv_disable_info
+ cv_security_alarm
+ freight_breach_for_rs
+ freight_equipment_info
+ cvo_onboard_safety_data

cvo_on_board_safety_data

This data flow is used within the Manage Commercial Vehicle function. It contains safety data measured by on-board sensors including vehicle information, vehicle components, cargo and driver information.

cvo_on_board_sensor_data

This data flow is used within the Manage Commercial Vehicle function and contains data from on-board commercial vehicle sensors and its attached freight equipment. On-board sensor data includes driver status, vehicle condition and freight equipment information. The data flow consists of the following data items each of which is defined in its own DDE:

cv_cargo_status
+ cv_security_systems_diagnostics_results
+ cv_safety_systems_diagnostics_results
+ freight_equipment_id
+ freight_equipment_location
+ freight_operational_data
+ freight_maintenance_data
+ freight_integrity_data
+ vehicle_identity
+ vehicle_location_for_cv

cvo_on_board_vehicle_data_request

This data flow is used within the Manage Commercial Vehicle function and contains a request for data collected on-board a commercial vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

cv_on_board_data_required

cvo_onboard_driver_log_for_admin

This data flow is used to provide the Commercial Vehicle administrative facilities with the driver log maintained by on-board systems including the driver's hours of service. The data flow consists of the following data item which is defined in its own DDE:

cvo_onboard_safety_data

This data flow is used to provide the Commercial Vehicle roadside facilities with safety data measured by on-board sensors including vehicle information, vehicle components, cargo and driver information.

cvo_onboard_safety_data_for_admin

This data flow is used to provide the Commercial Vehicle administrative facilities with safety data measured by on-board sensors including vehicle information, vehicle components, cargo and driver information.

cvo_repair_information

This data flow contains the repair and service records and any out of service data concerning a commercial vehicle. It consists of the following items each of which is defined in its own DDE:

cv_repairs_and_service_records
+ cv_out_of_service_status

cvo_request_freight_route

This data flow is used within the Manage Commercial Vehicles function. It is used to request the preparation of a dynamic route for a commercial vehicle based on the booking information provided by the shipper. The data flow consists of the following items each of which is defined in its own DDE:

constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_load_classification
+ constraint_on_avo_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type
+ destination
+ departure_time
+ desired_arrival_time
+ modes
+ origin
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ preferred_weather_conditions
+ freight_cargo_data
+ freight_equipment_number

cvo_request_hazmat_info
This data flow contains the request for information about hazardous material on-board a commercial vehicle and details of the vehicle itself.

cvo_request_tag_data
This data flow is used within the Manage Commercial Vehicle function. It contains a request for tag information (including credit identity, stored value card cash, etc.).

cvo_route_data_for_tracking
This data flow contains the planned routing information used to monitor a commercial vehicle for route deviations. The data flow consists of the following data items each of which is defined in its own DDE:

cv_route_number
+ cv_route_data

cvo_route_data_request
This data flow contains a request for the scheduled route of a commercial vehicle. The routing information supplied in response to this request is used in support of in-transit commercial vehicle monitoring.

cvo_route_for_freight
This data flow contains the route plan used to monitor freight equipment for route deviations. The data flow consists of the following data items each of which is defined in its own DDE:

cv_route_data
+ cv_route_number
+ freight_equipment_number

cvo_route_warning
This data flow contains route monitoring data for a commercial vehicle that has deviated beyond the acceptable limits of its intended route. The data flow consists of the following data item each of which is defined in its own DDE:

cv_route_monitoring_status

cvo_safety_inspection
This data flow is used within the Manage Commercial Vehicle function. It contains a record of the results of commercial vehicle safety inspections.

cvo_safety_inspection_data
This data flow is used within the Manage Commercial Vehicle function. It consists of a report containing results of a commercial vehicle safety inspection. The data flow consists of the following data items each of which is defined in its own DDE:

cv_archived_inspection_data
+ cv_archived_safety_data

cvo_safety_inspection_request
This data flow is used within the Manage Commercial Vehicle function. It contains a request for safety inspection record.

cvo_safety_status
This data flow is used within the Manage Commercial Vehicles function and provides the detailed status for the safety of a commercial vehicle or carrier, including safety ratings, inspection summaries, etc.

cvo_security_alarm
This data flow contains data about a potential critical security problem(s), including a breach or tamper event, involving a commercial vehicle. The data flow consists of the following data item each of which is defined in its own DDE:

cv_critical_security_problem
+ cv_identity_details
+ vehicle_location_for_cv
+ time
+ date

cvo_stored_on_board_sensor_data

This data flow is used within the Manage Commercial Vehicle function and contains data from on-board sensors in the commercial vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

cvo_on_board_sensor_data

cvo_tag_data

This data flow is used within the Manage Commercial Vehicle function. It contains unique tag ID and related vehicle information. The data flow consists of the following data items each of which is defined in its own DDE:

tag_identity
+ cv_trip_identity
+ cv_credentials_details

cvo_tag_data_store_request

This data flow is used within the Manage Commercial Vehicle function. It contains a request to store information such as unique tag ID and related vehicle information.

cvo_tag_safety_data

This data flow is used within the Manage Commercial Vehicle function. It contains information on safety data measured by on-board sensors. It includes information about the vehicle, the vehicle components, the cargo and the driver.

cvo_to_toll

This data flow is sent from the Manage Commercial Vehicles function to the Provide Electronic Payment Services function. It contains requests for payment for tolls. The data flow consists of the following item which is defined in its own DDE:

cvo_toll_data_request
+ cvo_advanced_payments_request
+ financial_request
+ cv_driver_enrollment_cost

cvo_toll_data_request

This data flow is sent from the Manage Commercial Vehicles function to the Provide Electronic Payment Services function. It contains requests for payment for tolls. The data flow consists of the following item which is defined in its own DDE:

cvo_toll_price_request
+ cvo_advanced_toll_request

cvo_toll_payments

This data flow is sent from the Provide Electronic Payment Services function to the Manage Commercial Vehicles function. It contains data that provides the results of payments for tolls. The data flow consists of the following item which is defined in its own DDE:

cvo_toll_price
+ cvo_advanced_toll_confirmation

cvo_toll_price

This data flow contains the price for each road segment to which a toll applies for commercial vehicles, with the time and date for when it applies. This data will be used by the Manage Commercial Vehicle Fleet Operations in its efforts to run its operations more efficiently. The data flow consists of the following data items each of which is defined in its own DDE:

toll_segments
+ toll_price
+ toll_price_application_time

cvo_toll_price_request

This data flow contains a request for the current prices being charged for toll segments on the road and highway network being used by the commercial vehicles.

cvo_tracking_data

This data flow contains vehicle location data for a specific commercial vehicle used for in-transit visibility. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ vehicle_location_for_cv

cvo_transportation_border_clearance
This data flow is used within the Manage Commercial Vehicle function. It consists of notifications regarding permissions given for commercial freight shipments to enter the United States. It includes directions for commercial vehicle drivers to proceed to the nearest vehicle weigh and inspection station for further review. The data flow consists of the following data items each of which is defined in its own DDE:

cvo_transportation_border_results

cvo_transportation_border_results
This data flow is used within the Manage Commercial Vehicle function. It contains information regarding the granting of permission for commercial freight shipment to enter the U.S. It may include contents regarding directions for the commercial vehicle driver to proceed to another station for further review.

cvo_trip_identification_number
This data flow is used within the Manage Commercial Vehicle function. It contains the unique trip load number for a specific cross-border shipment. The data flow consists of the following data items each of which is defined in its own DDE:

cv_trip_identity

cvo_trip_log_data
This data flow is used within the Manage Commercial Vehicle function. It contains trip information including the driver's daily log, vehicle location, mileage, and trip activity (including screening, inspection, and border clearance event data.

cvo_trip_log_data_request
This data flow is used within the Manage Commercial Vehicle function. It contains a request for trip information (including the driver's daily log, vehicle location, mileage, and trip activity).

cvo_vehicle_route
This data flow contains route monitoring data used to determine if a commercial vehicle has deviated from its intended route. The data flow consists of the following data item each of which is defined in its own DDE:

cv_route_data
+ cv_route_number
+ route_monitoring_parameters

cvo_violation
This data flow is used within the Manage Commercial Vehicle function. It contains notification information to enforcement agencies about a violation. It describes the statute or regulation that was violated and how it was violated.

D

data_aggregation
This data flow identifies this data as an aggregation of the original data. This may be in the form of a yes/no flag or a description of the actual aggregation algorithm performed.

data_collection_device_control
This data flow is sent from the Manage Archived Data function to the Manage Traffic function to provide control information for data collection and monitoring equipment at the roadside. The sensor equipment includes environmental, HOV, pedestrian, traffic, multimodal crossing, reversible lane, and local sensors for roads and highways.

data_collection_device_control_from_personnel
This data flow is sent from the Archive Data Administrator interface to the Manage Archived Data function to provide control information for data collection and monitoring equipment at the roadside. The sensor equipment includes environmental, HOV, pedestrian, traffic, multimodal crossing, reversible lane, and local sensors for roads and highways.

data_collection_device_status
This data flow is sent from the Manage Traffic function to the Manage Archived Data function to provide operational status (state of the device, configuration, and fault data) of data collection and monitoring equipment from the roadside. The sensor equipment includes environmental, HOV, pedestrian, traffic, multimodal crossing, reversible lane, and local sensors for roads and highways. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ sensor_identity
+ sensor_device_status}

data_collection_device_status_to_personnel
This data flow is sent from the Manage Archived Data function to the Archive Data Administrator interface and provides operational status (state of the device, configuration, and fault data) of data collection and monitoring equipment from the roadside. The sensor equipment includes environmental, HOV, pedestrian, traffic, multimodal crossing, reversible lane, and local sensors for roads and highways. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id

+ sensor_identity
+ sensor_device_status}

data_collection_map_data
This data flow is used by the Provide Driver and Traveler Services function as a source of digitized data on the physical layout of the road and highway network. It contains digitized map data for use as background to displays of traveler information requested by the ISP operator. The data consists of the following data items each of which is defined in its own DDE:

map_digitized_data
+ map_link_identity_data
+ map_gazetteer_data
+ map_transit_data
+ map_hri_data

data_concept_identifier
This data flow defines a pointer to a common data dictionary or message set template which allows future applications to make better use of the data.

data_reductions
This data flow identifies any reductions that have been made to the original data. This may be in the form of a yes/no flag or a description of the actual reduction algorithm performed.

data_revision
This data flow is a flag to show that the data has been revised from its original version. The purpose of this flag is to notify users of the data from a source agency that the data being sent has been revised from its original state, either to correct an error in the data or fill in missing data.

data_version
This data flow identifies the version of the data when there may be more than one set of similar data. This data flow may be used in conjunction with the data_revision data flow to ensure the quality control in the received data.

date
This data flow is used within many ITS function and contains the calendar date data normally used to indicate currency or effectivity of other data flows. The codification of the data is YYYYMMDD or equivalent.

date_archived
This data flow is the date/time stamp of when the data being described was stored in the permanent archive. This data flow consists of the following items each of which is defined in its own DDE:

date
+ time

date_created
This data flow is the date/time stamp of when the data being described was created or collected at the source agency. This data flow consists of the following items each of which is defined in its own DDE:

date
+ time

date_published
This data flow is the date/time stamp of when the data being described was published or made available by the source agency. This data flow consists of the following items each of which is defined in its own DDE:

date
+ time

deactivate_traveler_information
This data flow removes all restrictions activated to protect sensitive traveler information.

deactivate_traveler_information_restrictions_for_traffic
This data flow is sent to the Manage Traffic function to remove all restrictions activated to protect sensitive traveler information. It consists of the following data items each of which is defined in its own DDE:

deactivate_traveler_information

deactivate_traveler_information_restrictions_for_transit
This data flow is sent to the Manage Transit function to remove all restrictions activated to protect sensitive traveler information. It consists of the following data items each of which is defined in its own DDE:

deactivate_traveler_information

deactivate_traveler_information_restrictions_for_travelers
This data flow is sent to the Manage Traveler information services function to remove all restrictions activated to protect sensitive traveler information. It consists of the following data item which is defined in its own DDE:

deactivate_traveler_information

decision_support_parameters
This data flow is used within the Manage Traffic function and contains control parameters from traffic operations personnel for the decision support process.

defined_incident_response_data
This data flow is used within the Manage Traffic function. It contains the data currently held in the store of defined incident responses and consists of the following data items, each of which is defined in its own DDE:

planned_incident_response
+ incident_info_template

defined_incident_response_data_request
This data flow is used within the Manage Traffic function. It contains a request for the data currently held in the store of defined incident responses.

defined_incident_response_update_request
This data flow is used within the Manage Traffic function and contains a request that possible defined incident responses are transferred from their data store to the store of live responses for use when incidents actually occur. It includes the following data item which is defined in its own DDE:

possible_defined_response_identity

defined_incident_response_updates
This data flow is used within the Manage Traffic function. It contains the updates to the data currently held in the store of defined incident responses as provided by the Traffic Operations Personnel. The data flow consists of either of the following data items, each of which is defined in its own DDE:

planned_incident_response
+ incident_info_template

defined_responses
This data flow is used within the Manage Traffic function. It contains the data currently held in the store of defined incident responses and consists of the following data items, each of which is defined in its own DDE:

planned_incident_response
+ incident_info_template
+ incident_type
+ traffic_impact_criteria

defined_responses_data
This data store is used within the Manage Traffic function and contains data about defined incident, disaster, or other emergency responses. It consists of the following data items each of which is defined in its own DDE:

incident_type
+ planned_incident_response
+ incident_info_template
+ traffic_impact_criteria
+ predefined_traffic_disaster_plan
+ predefined_traffic_evacuation_plan

defined_responses_data_request
This data flow is used within the Manage Traffic function. It contains a request for the data currently held in the store of defined incident responses data.

demand_data_update_request
This data flow is used within the Manage Traffic function to activate the process which collects data from other parts of ITS for use in traffic and travel demand forecasting.

demand_forecast
This data flow is used within the Manage Traffic function and contains the results from the process that produces the forecast of the future traffic and travel demand in the geographic area covered by ITS. It is used to select the appropriate response plan.

demand_forecast_data
This store is used within the Manage Traffic function to hold data which predicts traffic and travel demand over the geographic area covered by ITS. It is based on input data provided by other parts of ITS and is used as the basis for the implementation of new demand management actions.

demand_forecast_request
This data flow is used within the Manage Traffic function to activate the process which produces a forecast of the future traffic and travel demand in the geographic area covered by ITS.

demand_forecast_result

This data flow is used within the Manage Traffic function to provide the results from the process that produces the forecast of the future traffic and travel demand in the geographic area covered by ITS.

demand_input_data

This store is used within the Manage Traffic function to hold data collected from other facilities within the function and from other parts of ITS that can be used as input to the traffic and travel demand forecasting process. This data will show the current and historical patterns of traffic and travel in the geographic area controlled by ITS, as well as (where available) predictions of future traffic based on trip planning requests.

demand_management_activate

This data flow is used within the Manage Traffic function to activate the process which acts on the results of the demand forecasting process to implement new demand management strategies, using demand management policy data.

demand_management_result

This data flow is used within the Manage Traffic function and provides the results of the requested activation of the demand management process. These results are designed to show whether or not the policies have been accepted by other parts of ITS.

demand_overrides

This data flow is used within the Manage Traffic function. It contains changes to the current traffic management strategy that will help to alter the split of travel demand between the various modes of travel. These changes will affect things such as the traffic control strategy at intersections and highway ramps and the status of parking lots. They may also give priority to certain types of vehicles such as those in carpools and vanpools.

demand_policy_data

This store is used within the Manage Traffic function to hold data which defines the policies that are to be applied to the implementation of the results of traffic and travel demand forecasting. They can be used to influence such things as traffic control strategies including HOV lane states, parking lot states and charges, route choice parameters, transit fares, etc.

demand_results

This data flow is used within the Manage Traffic function and contains traffic and travel demand forecasts in the geographic area covered by ITS, as well as warnings of imbalances in corridor performance. It is used to select the appropriate response plan. The data flow consists of the following data items each of which is defined in its own DDE:

demand_forecast
+ imbalance_warning

departure_time

This data flow is used within the Provide Driver and Traveler Services function and defines the time at which a driver or traveler's planned or requested trip is to start. It consists of the following data item which is defined in its own DDE:

time

desired_arrival_time

This data flow is used within the Provide Driver and Traveler Services function and specifies the target time for arrival at the end of a driver or traveler's planned or requested trip. It consists of the following data item which is defined in its own DDE:

time

desired_departure_time

This data flow is used within the Provide Driver and Traveler Services function and specifies the target time for departure of a driver or traveler's planned or requested trip. It consists of the following data item which is defined in its own DDE:

time

destination

This data flow is used within the Provide Driver and Traveler Services function. It defines the destination point for a trip request or a route to be used by a traveler or a vehicle. In some instances it will be used as the origin for the use of a particular mode within a trip, e.g. the part of the route for the trip that is to be provided by walking, or ridesharing, or an multimodal service provider. It consists of the following data item which is defined in its own DDE:

route_point

detailed_emergency_status

This data flow is used within the Manage Emergency Services function and provides the detailed status for an emergency response that is in progress. It will include a detailed view of the assets which are deployed for the emergency, the current emergency status and any HAZMAT information not already sent.

incident_number
+ incident_severity
+ incident_vehicle_status
+ incident_status
+ cf_hazmat_vehicle_information

detected_threat
This data flow identifies the type of threat (chemical, biological, intrusion, etc.).

device_control_request_from_other_center
This data flow is received from a traffic management center outside the local jurisdiction. It is used by the other center to request remote control of field equipment belonging to the local traffic management center.

device_control_request_to_other_center
This data flow is received from the traffic operations personnel and is used to request remote control of field equipment belonging to another traffic management center outside the local jurisdiction.

device_control_state
This data flow contains the state of all active controls at a local HRI. This data flow is made up of the following items each of which is defined in its own DDE:

traffic_device_control_state
+ hsr_device_control_state
+ ssr_device_control_state
+ barrier_device_control_state

device_data_for_incidents
This data flow contains information concerning device control and static which may be used by the Manage Incidents function. This data flow is made up of the following items each of which is defined in its own DDE:

video_camera_control_strategy
+ supply_incident_static_data

device_identity
This data flow contains an identifier of devices such as traffic and environmental probe field equipment, short range communications traveler information devices, automated roadway treatment systems, barrier systems, safeguard systems, intrusion detection or alert devices, etc. The identifier would be a code which describes the type of the device.

device_setting
This data flow is used to describe the capabilities of the interface device being used by a traveler to receive data. The flow would contain information such as device hardware characteristics (e.g. storage, graphics level, modem speed) and software characteristics (e.g. operating system).

device_status_from_traffic
This data flow is used within the Manage Traffic function to provide the operational status (state of the device, configuration, and fault data) of field devices. It consists of the following data item which is defined in its own DDE:

vehicle_traffic_probe_equip_status

device_status_to_roadway_m_and_c
This DFD flow represents the data flows from Provide Roadside Control Facilities to Determine M&C Needs and includes fault status from roadside equipment. It consists of the following items each of which is defined in its own DDE:

indicator_equip_status_from_roads_for_m_and_c
+ indicator_equip_status_from_highways_for_m_and_c
+ vehicle_sign_equip_status_for_m_and_c
+ dms_equip_status_for_m_and_c
+ har_equip_status_for_m_and_c
+ barrier_system_equip_status_for_m_and_c
+ lighting_system_equip_status_for_m_and_c
+ roadway_warning_equip_status_for_m_and_c

direction_commands
This data flow is used to select forward motion, rearwards motion or neutral.

disable_commercial_vehicle
This data flow generated by the Manage Emergency Services function requests the safe disabling of a commercial vehicle. The data flow consists of the following data items which are defined in their own DDE:

disable_cv
+ vehicle_identity

disable_cv
This data flow is used to request the disabling a commercial vehicle in a safe manner.

disaster_and_evacuation_data_from_m_and_c
This data flow is used to coordinate disaster response and evacuation information with maintenance and construction. The data flow consists of the following data items which are defined in their own DDE:

m_and_c_evacuation_resource_response

+ evacuation_plan_coordination_from_m_and_c
+ disaster_response_plan_coordination_from_m_and_c

disaster_and_evacuation_data_to_m_and_c

This data flow is used to coordinate disaster response and evacuation information with maintenance and construction. The data flow consists of the following data items which are defined in their own DDE:

m_and_c_evacuation_resource_request
+ evacuation_plan_coordination_to_m_and_c
+ disaster_response_plan_coordination_to_m_and_c

disaster_and_evacuation_info_from_transit

This data flow is used to coordinate disaster response and evacuation information with transit management. The data flow consists of the following data items which are defined in their own DDE:

disaster_response_plan_coordination_from_transit
+ evacuation_plan_coordination_from_transit
+ transit_evacuation_status
+ transit_schedule_information_during_evacuation

disaster_and_evacuation_info_to_transit

This data flow is used to coordinate disaster response and evacuation information with transit management. The data flow consists of the following data items which are defined in their own DDE:

disaster_response_plan_coordination_to_transit
+ evacuation_plan_coordination_to_transit
+ transit_evacuation_resource_request
+ disaster_transportation_system_status_for_transit
+ evacuation_information_for_transit_management
+ evacuation_transportation_system_status_for_transit

disaster_coordination_response_data

This flow contains the set of disaster response and recovery plans from traffic management, transit management, maintenance and construction, other emergency management, etc. This data is forwarded to the local manage emergency response function for implementation. The data flow consists of the following data items which are defined in their own DDE:

rail_disaster_response_plan
+ transit_disaster_response_plan
+ oem_disaster_response_plan
+ m_and_c_disaster_response_plan
+ traffic_disaster_response_plan

disaster_data

This data store is used within the emergency management function for disaster response coordination. It contains preplanned disaster response and recovery plans. In the event that a disaster is declared, a disaster response plan is selected that best fits the current disaster from the store. It is then updated by coordinating with transportation agencies, jurisdictions, etc. to create a disaster response and recovery plan for implementation. The data store consists of the following data item which is defined in its own DDE:

preplanned_disaster_response_plan

disaster_data_for_archive

This flow contains the disaster response and recovery plans that will be used by the emergency management functions and sends them to the archive of data. The data flow consists of the following data items which are defined in their own DDE:

emergency_input_for_disaster
+ emergency_disaster_response_plan

disaster_network_status_from_traffic_to_m_and_c

This data flow is sent from the Manage Traffic function to Maintenance and Construction. It is used to send details of current and forecasted traffic information, road and weather conditions, and other road network status for use in developing disaster response and recovery plans. It contains the following data items each of which is defined in its own DDE:

link_state_data
+ roadway_environment_conditions
+ predicted_road_network_data
+ current_data_for_output

disaster_response_evacuation_data

This flow contains the disaster response and recovery data for use by the evacuation function. It contains both the disaster input data and the disaster response plan. The data flow consists of the following data items which are defined in their own DDE:

emergency_input_for_disaster
+ emergency_disaster_response_plan

disaster_response_m_and_c_available_resources

This data flow contains the available resources for disaster response from maintenance and construction. The data flow consists of the following data items which are defined in their own DDE:

m_and_c_resources

disaster_response_m_and_c_work_plan

This data flow contains the available work plan for disaster response from maintenance and construction. It consists of the following data items each of which is defined in its own DDE:

m_and_c_work_plans

disaster_response_oem_available_resources

This data flow contains the available resources for disaster response from another emergency management center. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_vehicle_availability

disaster_response_plan_coordination_from_m_and_c

This data flow is used is used to coordinate disaster response and recovery plans with maintenance and construction. It contains a resulting response and recovery plan that maintenance can use based on modifications to the preplanned response and recovery plan and information available about the disaster. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_disaster_response_plan

disaster_response_plan_coordination_from_traffic

This data flow is used is used to coordinate disaster response and recovery plans with traffic management. It contains a resulting response and recovery plan that traffic management can use based on modifications to the preplanned response and recovery plan and information available about the disaster. The data flow consists of the following data item which is defined in its own DDE:

traffic_disaster_response_plan

disaster_response_plan_coordination_from_transit

This data flow is used is used to coordinate disaster response and recovery plans with transit management. It contains a resulting response and recovery plan that transit management can use based on modifications to the preplanned response and recovery plan and information available about the disaster. The data flow consists of the following data item which is defined in its own DDE:

transit_disaster_response_plan

disaster_response_plan_coordination_to_m_and_c

This data flow is used to coordinate disaster response and recovery plans with maintenance and construction. It contains information regarding the nature of the disaster, and the preplanned response and recovery plan for maintenance. Given this information, maintenance can provide a modified plan that it will use and is appropriate for the given disaster. The data flow consists of the following data items which are defined in their own DDE:

emergency_input_for_disaster
+ evacuation_status_for_disaster_response
+ m_and_c_preplanned_disaster_response_plan
+ disaster_transportation_system_status

disaster_response_plan_coordination_to_traffic

This data flow is used to coordinate disaster response and recovery plans with traffic management. It contains information regarding the nature of the disaster, and the preplanned response and recovery plan for traffic. Given this information, traffic management can provide a modified plan that it will use and is appropriate for the given disaster. The data flow consists of the following data items which are defined in their own DDE:

emergency_input_for_disaster
+ evacuation_status_for_disaster_response
+ traffic_preplanned_disaster_response_plan
+ disaster_transportation_system_status

disaster_response_plan_coordination_to_transit

This data flow is used to coordinate disaster response and recovery plans with transit management. It contains information regarding the nature of the disaster, and the preplanned response and recovery plan for transit. Given this information, transit can provide a modified plan that it will use and is appropriate for the given disaster. The data flow consists of the following data items which are defined in their own DDE:

emergency_input_for_disaster
+ evacuation_status_for_disaster_response
+ transit_preplanned_disaster_response_plan
+ disaster_transportation_system_status

disaster_response_rail_available_resources

This data flow contains the available resources for disaster response from rail operations. The data flow consists of the following data items each of which is defined in its own DDE:

rail_available_resources

disaster_response_rail_schedule

This data flow contains the available schedule for disaster response from rail operations.

disaster_response_traffic_available_resources

This data flow contains the resources traffic management has available for use in the current disaster. The data flow consists of the following data items which are defined in their own DDE:

traffic_resources_available

disaster_response_transit_available_resources

This data flow contains the resources transit has available for use in the current disaster. The data flow consists of the following data items which are defined in their own DDE:

transit_resources_available

disaster_response_transit_fares

This data flow contains the fares transit will use in the current disaster. The data flow consists of the following data items which are defined in their own DDE:

transit_fare

disaster_response_transit_routes

This data flow contains the routes transit will use in the current disaster. It consists of the following data items each of which is defined in its own DDE:

transit_route

disaster_response_transit_schedule

This data flow contains the schedule transit will use in the current disaster. The data flow consists of the following data items which are defined in their own DDE:

transit_schedule_data

disaster_traffic_control_request_from_other_traffic_management

This data flow is sent to Traffic Management from Other Traffic Management. It contains a request for traffic management center to implement a control strategy to support a non-local disaster response and recovery effort. The data flow consists of the following data items which are defined in their own DDE:

traffic_control_request

disaster_traffic_control_request_to_other_traffic_management

This data flow is sent from Traffic Management to Other Traffic Management. It contains a request for the other traffic management center to implement a control strategy to support the local disaster response and recovery effort. The data flow consists of the following data items which are defined in their own DDE:

traffic_control_request

disaster_traffic_control_response_from_other_traffic_management

This data flow is sent to Traffic Management from Other Traffic Management. It contains a response from another traffic management center on a control strategy that has been implemented to support a local disaster response and recovery effort. The data flow consists of the following data items each of which is defined in its own DDE:

traffic_control_response

disaster_traffic_control_response_to_other_traffic_management

This data flow is sent from Traffic Management to Other Traffic Management. It contains a response to other traffic management center on a control strategy that has been implemented to support a non-local disaster response and recovery effort. The data flow consists of the following data items each of which is defined in its own DDE:

traffic_control_response

disaster_traffic_data_for_other_traffic_management

This data flow is sent from Traffic Management to Other Traffic Management. It contains information regarding a current disaster and a request for the other traffic management center to implement a control strategy to support the local disaster response and recovery effort. It also contains a response to a request from the other traffic management center for supporting a non-local disaster and recovery effort. It consists of the following data items each of which is defined in its own DDE:

disaster_traffic_information_for_other_traffic_management
+ disaster_traffic_control_request_to_other_traffic_management
+ disaster_traffic_control_response_to_other_traffic_management

disaster_traffic_data_from_other_traffic_management
This data flow is sent to Traffic Management from Other Traffic Management. It contains information regarding a current disaster and a request for the local traffic management center to implement a control strategy to support a non-local disaster response and recovery effort. It also contains a response to a request from the local traffic management center for supporting a local disaster and recovery effort. It consists of the following data items each of which is defined in its own DDE:

disaster_traffic_information_from_other_traffic_management
+ disaster_traffic_control_request_from_other_traffic_management
+ disaster_traffic_control_response_from_other_traffic_management

disaster_traffic_information_for_other_traffic_management
This data flow is sent from Traffic Management to Other Traffic Management. It contains information regarding a current disaster. It consists of the following data items each of which is defined in its own DDE:

emergency_input_for_disaster
+ predefined_traffic_disaster_plan

disaster_traffic_information_from_other_traffic_management
This data flow is sent to Traffic Management from Other Traffic Management. It contains information regarding a current non-local disaster. It consists of the following data items each of which is defined in its own DDE:

emergency_input_for_disaster
+ predefined_traffic_disaster_plan

disaster_transportation_system_status
This data flow consists of a report of the current status of the transportation system during a disaster situation - either during the planning stages prior to a major incident, during the response phase, or during the recovery phase following the disaster. The data contained in the flow is used to assist in developing a coordinated disaster response and recovery plan. The data flow consists of the following data items each of which is defined in its own DDE:

rail_system_status_for_disaster
+ m_and_c_status_assessment_for_disaster
+ network_status_from_traffic_for_disaster
+ transit_status_for_disaster

disaster_transportation_system_status_for_isp
This data flow consists of a report of the current status of the transportation system. This data is reported to information service providers as an ongoing status during a disaster. The data flow consists of the following data item which is defined in its own DDE:

disaster_transportation_system_status

disaster_transportation_system_status_for_traffic
This data flow consists of a report of the current status of the transportation system. This data is reported to traffic management as an ongoing status during a disaster. The data flow consists of the following data item which is defined in its own DDE:

disaster_transportation_system_status

disaster_transportation_system_status_for_transit
This data flow consists of a report of the current status of the transportation system. This data is reported to transit as an ongoing status during a disaster. The data flow consists of the following data item which is defined in its own DDE:

disaster_transportation_system_status

dispatch_info_for_m_and_c_fleet
This data is used within the Manage Maintenance and Construction function and contains dispatch parameters from the center personnel for use by the Maintenance and Construction vehicle fleet manager.

dispatch_orders_to_mcv
This data is used within the Manage Maintenance and Construction function and contains dispatch information from the vehicle fleet manager to the maintenance and construction vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

m_and_c_center_identity
+ vehicle_id_for_mcv
+ time
+ date
+ mcv_dispatch_instructions
+ alert_and_threats_for_maint_field_personnel

dispatch_response_from_mcv

This data flow is sent from the maintenance and construction vehicle to the vehicle fleet management to acknowledge that the vehicle has been dispatched and is on its way to the location identified in the dispatch request.

display_map_traveler_update_cost

This data flow contains the cost of an update to the digitized map data used as the background to displays of traffic and travel information on a traveler's personal device.

dms_advisory_text

This data flow is used within the Manage Traffic function and contains details of the actual advisory text strings that are to be output to drivers and pedestrians using indicators that are dynamic message signs (DMS). The advisory text string may be one of several types depending on the type of information being provided. The data flow will consist of one of the following data items each of which is defined in its own DDE:

[dms_highway_open_close | dms_incident_warning | dms_weather_warning | dms_auto_treat_info | roadway_information_incident_updates | barrier_info | safeguard_info | traffic_metering_info | variable_speed_limit_info | roadway_warning_info]

dms_allocation

This data flow is used within the Manage Traffic function and contains details of the way in which dynamic message signs (DMS) are allocated to the road and highway network within the geographic area controlled by ITS. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + route_segment_end_point
    + route_segment_identity
    + route_segment_start_point}

dms_auto_treat_data_from_maint

This data flow contains the actual data from which instructions to the driver and traveler can be produced by indicators at dynamic message (DMS) and other types of signs at the roadside. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}

dms_auto_treat_data_from_roadway

This data flow contains the actual data from which instructions to the driver and traveler can be produced by indicators at dynamic message (DMS) and other types of signs at the roadside. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}

dms_auto_treat_info

This data flow is the DMS state which gives warning of activation of the roadway automated treatment device, indicating the condition that warranted the device's activation, or that treatment is in progress.

dms_auto_treat_status_to_maint

This data flow contains the operational status (state of the device, configuration, and fault data) for a Dynamic Message Sign to be sent to the roadway automated treatment management function for maintenance and construction. This includes status from signs operating at the roadside in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status
+ dms_advisory_text

dms_barrier_activated_from_roadway

This data flow from an automated barrier system causes a roadway information device such as a dynamic message sign (DMS) to display an indication of the status of the barrier system (e.g. open, closed). The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}

dms_control_data

This data flow contains the actual control data to be passed to an indicator that is a dynamic message sign.

dms_data

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators at dynamic message (DMS) and other types of signs at the roadside. It consists of the following data items each of which is defined in its own DDE:

indicator_sign_control_data
+ indicator_sign_control_data_for_hri
+ dms_data_for_evacuation

dms_data_for_evacuation

This flow contains information regarding the evacuation to be sent to a dynamic message sign for distribution to the traveler. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule

dms_data_for_isp

This data flow contains the actual data posted on dynamic message signs (DMS) at the roadside. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{device_identity
+ station_id
+ dms_advisory_text}

dms_data_from_m_and_c

This data flow contains the actual data from which instructions to the driver and traveler can be produced by indicators at dynamic message (DMS) and other types of signs at the roadside. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}

dms_data_from_mcv

This data flow contains the actual data from which instructions to the driver and traveler can be produced by indicators at dynamic message (DMS) and other types of signs at the roadside. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}

dms_displays

This data flow is used within the Manage Traffic function and contains the actual texts for use in dynamic message sign (DMS) displays that are to be used to provide forewarning of the full range of incidents.

dms_downstream_identity

This data flow is used within the Manage Traffic function and provides the identity of the dynamic message sign (DMS) that is downstream of the DMS to which the data relates. The data flow consists of the following data item which is defined in its own DDE:

indicator_identity

dms_emissions_message

This data flow is used within the Manage Traffic function. It is a DMS state which advises drivers that a particular vehicle is producing abnormal emissions, or that the general pollution levels are too high. If the pollution levels are not out of the ordinary, i.e. within limits, no indication will be given.

dms_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of a dynamic message sign (DMS) for the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status
+ dms_advisory_text
+ dms_traffic_metering_data

dms_highway_open_close

This data flow is used within the Manage Traffic function. It is a DMS state which advises drivers that some or all of the highway(s) ahead is(are) closed. If the highway(s) are open no indication will be given as this is the normal state.

dms_hri_allocation

This data flow is used within the Manage Traffic function. It contains details of the way in which dynamic message signs (DMS) are allocated to the road network within the geographic area controlled by ITS. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{crossing_id}

dms_incident_warning

This data flow is used within the Manage Traffic function and is the DMS state which gives warning of an incident to travelers.

dms_roadway_warning_from_roadway

This data flow contains warnings to be displayed on a local dynamic message sign (DMS) for drivers concerning potential roadway hazards, e.g., roadway weather conditions, road surface conditions, traffic congestion and queues, obstacles in the roadway.

dms_safeguard_activated_from_roadway

This data flow from an automated safeguard system (e.g., blast shields, exhaust fans) causes a roadway information device such as a dynamic message sign (DMS) to display an indication of the status of the safeguard system (e.g. ongoing, just completed, about to begin). The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}

dms_status

This data flow provides the operational status (state of the device, configuration, and fault data) of dynamic message signs (DMS) for the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status
+ dms_advisory_text

dms_status_for_m_and_c

This data flow contains the operational status (state of the device, configuration, and fault data) for a Dynamic Message Sign to be sent to the roadway management function for maintenance and construction. This also includes operating of the sign at the roadside in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status
+ dms_advisory_text

dms_status_for_mcv

This data flow contains the operational status (state of the device, configuration, and fault data) for a Dynamic Message Sign to be sent to the roadway management function for maintenance and construction. This also includes operating of the sign at the roadside in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status
+ dms_advisory_text

dms_traffic_metering_data

This data flow is used to control the messages is to be displayed and output on a dynamic message sign (DMS), highway advisory radio (HAR), or in-vehicle signage as drivers approach a traffic meter (e.g, ramp meter).

dms_traffic_metering_data_from_roadway

This data flow contains data to provide information to drivers about traffic metering systems (status and directions to drivers) to be displayed on DMS signs. It consists of the following data item which is defined in its own DDE:

dms_traffic_metering_data

dms_upstream_identity

This data flow is used within the Manage Traffic function and provides the identity of the dynamic message sign (DMS) that is upstream of the DMS to which the data relates. The data flow consists of the following data item which is defined in its own DDE:

indicator_identity

dms_variable_speed_data

This data flow is used to control the messages is to be displayed and output on a dynamic message sign (DMS) or highway advisory radio (HAR) as drivers approach an area with variable speed limits. This speed limit may vary based on traffic or environmental conditions.

dms_variable_speed_data_from_roadway

This data flow is used internally within a roadway system to control the messages is to be displayed and output as drivers approach an area with variable speed limits. It consists of the following item which is defined in its own DDE:

dms_variable_speed_data

dms_variable_speed_limit_data

This data flow is used to control the messages is to be displayed and output on a dynamic message sign (DMS) or highway advisory radio (HAR) as drivers approach an area with variable speed limits. This speed limit may vary based on traffic or environmental conditions.

dms_weather_warning

This data flow is used within the Manage Traffic function and is the DMS state which gives warning of weather conditions which are likely to be hazardous to driving.

dms_wide_area_alert_information

This data flow is used within the Manage Traffic function and contains details on the actual message pertaining to major emergencies, man-made disasters, civil emergencies, or child abductions that are to be output to drivers and pedestrians using indicators that are dynamic message signs (DMS).

dre_data_for_incident

This data flow is sent from the Manage Emergency Services function to the Manage Incident function. It contains the following data item which is defined in its own DDE:

disaster_response_plan_coordination_to_traffic
+ evacuation_plan_coordination_to_traffic
+ traffic_evacuation_resource_request
+ disaster_transportation_system_status_for_traffic
+ evacuation_information_for_traffic_management
+ evacuation_transportation_system_status_for_traffic
+ safeguard_system_status_for_detours

driver_advanced_payment_at_lot

This data flow is used within the Provide Electronic Payment Services function and contains details of the previously notified credit stored on the driver's payment instrument and the advanced parking lot charge, and/or toll cost, and/or transit fare which has to be deducted. It consists of the following data items each of which is defined in its own DDE:

stored_credit
+ parking_lot_cost
+ toll_cost
+ transit_fare

driver_advanced_payment_at_toll

This data flow is used within the Provide Electronic Payment Services function and contains details of the previously notified credit stored on the driver's payment instrument and the advanced parking lot charge, and/or toll cost, and/or transit fare which has to be deducted. It consists of the following data items each of which is defined in its own DDE:

stored_credit
+ parking_lot_cost
+ toll_cost
+ transit_fare

driver_advanced_payment_for_map

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function. It contains the cost of the update to the in-vehicle map database that must be deducted from the credit currently stored on the traveler card / payment instrument. The data flow consists of the following data items each of which is defined in its own DDE:

navigable_map_vehicle_update_cost
+ stored_credit

driver_avo_input

This data flow is used to indicate that automatic vehicle operations mode has been selected or unselected by the driver.

driver_commands

This data flow is used within the Provide Vehicle Control and Monitoring function and is a combination of all the commands produced as a result of driver inputs. It contains the following data items each of which is defined in its own DDE:

select_speed

+ select_headway
+ select_lane_hold

driver_credit_identity

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function. It contains the credit identity of a driver or the amount of stored credit obtained from the traveler card / payment instrument terminator and is used for purchasing updates to the in-vehicle navigable map database. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit

driver_display_update_payment_request

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains a request that payment be made for an update of the digitized map data used as background to the displays of traffic and travel information on a traveler's personal device. The payment will be made by debiting the credit identity with the cost through the financial institution terminator. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ credit_identity
+ display_map_traveler_update_cost

driver_display_update_payment_response

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function and contains the response to a previous request from the traveler that payment be made for an update of the digitized map data used as background to the displays of traffic and travel information in a traveler's vehicle. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ traveler_identity

driver_guidance_accepted

This data flow is used within the Provide Driver and Traveler Services function and contains the acceptance by the driver of the previously provided route for autonomous or on-line guidance. Acceptance must be provided before guidance can begin.

driver_guidance_data

This data flow is used within the Provide Driver and Traveler Services function and contains data to be used in a vehicle guidance request. It consists of some or all of the following data items each of which is defined in its own DDE:

origin
+ destination
+ desired_arrival_time
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_special_needs
+ constraint_on_load_classification
+ constraint_on_avo_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type

driver_guidance_request

This data flow is used within the Provide Driver and Traveler Services function and requests on-line dynamic or autonomous guidance for the vehicle in which the driver is traveling. The choice of the type of guidance made by the driver is shown by the character used in the data flow and will be 'D' for infrastructure based dynamic, 'L' for autonomous but using link journey and queue times provided from the infrastructure and 'A' for totally autonomous, i.e. no contact with anything outside the vehicle, except for broadcast data used to determine location.

driver_identity

This data item contains the identity of the commercial vehicle driver.

driver_information

This data flow is sent from the Provide Driver Personal Security function to the Provide Emergency Service Allocation function. This flow is used to convey information about the driver. The emergency service providers can dispatch emergency vehicles that will be prepared to give the kind of attention required in each particular situation. Information such as the driver's name, license number, or information about the driver's personal medical history may be included in this flow. Use of this field is voluntary and it should not be coded without the explicit consent of the driver.

driver_input

This data flow is used within the Provide Driver Monitoring and Control function. It contains the vehicle control mode selected by

the driver. The choice of modes is limited to manual (indicated by a zero), automatic control, or platoon following. The last two may be split up into various forms, e.g. automatic control may be speed control, headway control lane control, or any combination of these.

driver_input_request
This data flow is used within the Provide Driver and Traveler Services function to request the driver to input data for a route over which guidance has been requested, but for which data has not previously been entered and stored locally.

driver_manual_input
This data flow contains an indication that the driver has selected manual mode for the vehicle control or that automatic control is to be disabled.

driver_map_update_payment_request
This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains a request that payment be made for an update of the navigable map database used for on-line vehicle guidance. The payment will be made by debiting the credit identity with the cost through the financial institution terminator. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ credit_identity
+ navigable_map_vehicle_update_cost

driver_map_update_payment_response
This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function and contains the response to a previous request from the driver that payment be made for an update of the navigable map database used for on-line vehicle guidance. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ vehicle_identity

driver_map_update_request
This data flow is used within the Provide Driver and Traveler Services function and contains a request for an update of the digitized map used data used for on-line vehicle guidance. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ vehicle_identity

driver_map_update_response
This data flow is used within the Provide Driver and Traveler Services function and contains the response to a previous request from the driver for an update of the navigable map used database used for on-line vehicle guidance. The success of this transaction will be indicated by the confirmation flag data item. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ navigable_map_vehicle_update_cost
+ stored_credit
+ vehicle_identity

driver_parking_payment_credit_identity
This data flow is used within the Provide Electronic Payment Services function. It contains the credit identity or the amount of stored credit obtained from the payment instrument terminator on-board a vehicle at a parking lot. This data is used for payment of parking lot charges and if required, advanced payment for tolls, and/or parking lot charges, and/or transit fares. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit

driver_personal_emergency_request
This data flow is used within the Provide Driver and Traveler Services function to carry data about an emergency situation that applies to a driver and his vehicle. It contains the following data items each of which is defined in its own DDE:

vehicle_identity
+ vehicle_location_for_emergencies
+ vehicle_status_details
+ driver_information
+ call_back_information

driver_safety_status
This data flow contains information about the driver's state, including the driver's ability to control the vehicle (alcohol on the breath, too many mistakes, etc.) and injuries or other detectable problems with the vehicle's occupants.

driver_selection

This data flow contains parameters about the mode of automatic vehicle control selected by the driver. The driver has the options of setting the vehicle control for manual control, automatic control, or following a platoon.

driver_status_update

This data flow is used by the Provide Driver and Traveler Services function to send additional data about the driver for an emergency declared by a driver to the Manage Emergency Services function.

driver_toll_payment_credit_identity

This data flow is used within the Provide Electronic Payment Services function. It contains the credit identity or the amount of stored credit obtained from the payment instrument terminator on-board a vehicle as it passes through a toll plaza. This data is used for payment of tolls and if required, advanced payments for tolls, and/or parking lot charges, and/or transit fares. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit

driver_vmt_payment_confirmation

This data flow is sent to another process within the Provide Open Road Tolling function for output to the driver. It contains confirmation of traveler card payment of road use charges.

driving_guidance_instructions

This data flow is used to provide the driver with actual details of the next route segment to be followed by the vehicle in the form turnings to make, details of the roadway, etc.

duration

This data flow is used within many ITS functions. It contains the expected duration of a particular activity.

duty_cost

This data flow is used within the Manage Commercial Vehicle function. It contains the cost of commercial vehicle duties and consists of the following data item which is defined in its own DDE:.

cost

dynamic_lane_data

This data flow is used within the Manage Traffic function and contains data for dynamic lanes. The data flow consists of the following items each of which is defined in its own DDE:

dynamic_lane_status
+ dynamic_lane_video_image

dynamic_lane_mgmt_control_from_operator

This data flow provides control commands from the Traffic Operations Personnel interface for dynamic lane management equipment at the roadway, including parameters for determining the optimal lane configuration.

dynamic_lane_mgmt_control_from_other_traffic

This data flow provides requests from an operator outside the local jurisdiction for control of a dynamic lane management or shoulder use system. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ lane_controls
+ shoulder_controls}

dynamic_lane_mgmt_control_to_other_traffic

This data flow provides requests from a local operator for a dynamic lane management or shoulder use system outside the local jurisdiction. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ lane_controls + shoulder_controls}

dynamic_lane_sensor_data

This data flow contains the data obtained from processing the inputs from sensors around the road network for use in dynamic lane management. It consists of the following data items each of which is defined in its own DDE:

list_size
+ 1{station_id
+ sensor_identity
+ traffic_sensor_output}list_size

dynamic_lane_sensor_data_to_roadway

This data flow is used within the Manage Traffic function and contains the data obtained from processing the inputs from sensors around the road network. It consists of the following data items each of which is defined in its own DDE:

list_size
+ 1{station_id
+ sensor_identity
+ traffic_sensor_output}list_size

dynamic_lane_status
This data flow is used within the Manage Traffic function and reports the status of a dynamic lane management lane or shoulder. The data flow reports the current lane assignment configuration.

dynamic_lane_status_to_operator
This data flow is used within the Manage Traffic function to report to the traffic operations personnel the status of Dynamic Lane Management and Shoulder Use systems operating at the roadside in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

lane_management_status
+ shoulder_management_status

dynamic_lane_video_image
This data flow is used within the Manage Traffic function. It contains video images of the areas used for dynamic lane management. It consists of the following data item which is defined in its own DDE:

incident_video_image

dynamic_parking_data_for_drivers
This data flow contains dynamic parking information for to be given to the driver. This data flow is made up of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_identity
+ parking_lot_state
+ parking_lot_occupancy
+ parking_lot_arrival_details
+ parking_lot_departure_details
+ parking_lot_entrances_closed}

dynamic_parking_information_for_coordination
This data flow contains dynamic parking information that is sent to other parking management systems in the region. This includes parking lot occupancy (e.g., number of spaces filled), state (e.g., full, almost full), and status of entrances (open/closed). This data flow is made up of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_identity
+ parking_lot_state
+ parking_lot_occupancy
+ parking_lot_entrances_closed}

dynamic_parking_information_for_isp
This data flow contains dynamic parking information that would be of interest to travelers. This includes parking lot occupancy (e.g. number of spaces filled), entrances open/closed, and state (e.g. full, almost full). This data flow is made up of the following data items, each of which is defined in its own DDE:

list_size{parking_lot_state
+ parking_lot_identity
+ parking_lot_occupancy
+ parking_lot_entrances_closed}

dynamic_parking_information_for_traffic
This data flow contains dynamic parking information that would be of interest to traffic management. This includes parking lot occupancy (e.g. number of spaces filled), state (e.g. full, almost full), entrances open/closed, and detailed arrival and departure information. This data flow is made up of the following data items, each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_state
+ parking_lot_identity
+ parking_lot_occupancy
+ parking_lot_entrances_closed}

dynamic_parking_information_for_transit
This data flow contains dynamic parking information that would be of interest to transit management. This includes parking lot occupancy (e.g. number of spaces filled), state (e.g. full, almost full), entrances open/closed, and detailed arrival and departure information. This data flow is made up of the following data items, each of which is defined in its own DDE:

list_size + list_size{parking_lot_state

+ parking_lot_identity
+ parking_lot_arrival_details
+ parking_lot_departure_details
+ parking_lot_occupancy
+ parking_lot_entrances_closed}

dynamic_traveler_guidance_data

This data flow is used within the Provide Driver and Traveler Services function and contains the data for providing dynamic guidance to a traveler using a personal device. It consists of the following data items each of which is defined in its own DDE:

route
+ route_cost

dynamic_traveler_guidance_data_request

This data flow is used within the Provide Driver and Traveler Services function and requests on-line dynamic guidance for a traveler who is using a personal portable device. The data flow consists of the following data items each of which is defined in its own DDE:

origin
+ destination
+ desired_arrival_time
+ modes
+ preferred_routes
+ preferred_alternate_routes
+ preferred_ridesharing_options
+ preferred_route_segments
+ preferred_transit_options
+ constraint_on_acceptable_travel_time
+ constraint_on_number_of_mode_changes
+ constraint_on_number_of_transfers
+ constraint_on_eta_change
+ constraint_on_special_needs

dynamic_vehicle_guidance_data

This data flow is used within the Provide Driver and Traveler Services function and contains the data for providing dynamic guidance to a driver in a vehicle. It consists of the following data items each of which is defined in its own DDE:

route
+ route_cost

dynamic_vehicle_guidance_data_request

This data flow is used within the Provide Driver and Traveler Services function. It contains data for use as the request for on-line dynamic guidance of the vehicle in which the driver is traveling. The data flow consists of the following data items each of which is defined in its own DDE:

origin
+ destination
+ desired_arrival_time
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_special_needs
+ constraint_on_load_classification
+ constraint_on_avo_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type

E

electronic_payment_to_vehicles

This data flow is sent from the Provide Electronic Payment Service function to the Provide Vehicle Monitoring and Control function and contains parking and toll tag numbers. The data flow consists of the following items each of which is defined in its own DDE:

toll_vehicle_payment_number
+ parking_vehicle_payment_number

em_archive_catalog

This data flow is used to provide the description of the data contained in the collection of emergency data that has been stored and made available for the Manage Archive function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g., time range of entries, number of entries; or simple data product.

em_archive_catalog_request

This data flow from the Manage Archive Data function contains the request for a catalog of the data held by the Emergency Management function. The request for a catalog may include the description of types of data the archive is interested in or a time frame over which the requested information may be available.

em_archive_data

This data flow from Emergency Management to Manage Archive Data contains the archive data stored in the Emergency Management function along with the meta data describing the data as collected from field equipment. This data can include a catalog of the data held by the function. The data flow is made up of the following items, each of which is defined in its own DDE:

em_archive_catalog
+ em_data_for_archive

em_archive_data_request

This data flow from the Manage Archived Data function contains the request for data collected and stored by the Emergency Management function. The request for data may include either or both the description of the data required or a time frame over which the requested information may be available.

em_archive_input

This data flow from the Manage Archived Data function to the Manage Emergency Services function contains the request for the catalog of data and the data itself. This flow also contains a report of status from the archive function. This data flow consists of the following data items each of which is defined in its own DDE:

em_archive_request
+ em_archive_status

em_archive_request

This data flow from the Manage Archived Data function contains the request for data collected and stored by the Emergency Management function. The request can be a request for a catalog of the data held by the function or a request for the data itself. This data flow consists of the following data items each of which is stored in its own DDE:

em_archive_catalog_request
+ em_archive_data_request

em_archive_status

This data flow is sent from the Manage Archived Data function to the Emergency Management function. It is the status returned when transit archive data is sent from the Emergency Management function to the Manage Archived Data function.

em_data_for_archive

This data flow is sent from the Manage Emergency Services function to the Manage Archived Data function. It is used to provide details of emergency operational data for release to the data archive. This data flow is made up of the following items each of which is defined in its own DDE:

em_operational_data
+ em_operational_data_attributes

em_data_for_incident

This data flow is sent from the Manage Emergency Services function to the Manage Incident function. It contains the following data item which is defined in its own DDE:

incident_details
+ incident_response_status
+ resource_request
+ remote_video_image_control
+ traveler_information_restrictions_for_traffic
+ deactivate_traveler_information_restrictions_for_traffic
+ threat_and_infrastructure_info_for_traffic
+ wide_area_alert_notification_for_traffic
+ em_resource_response_to_traffic
+ roadway_closure_from_emergency

em_data_for_traffic

This data flow is sent from the Manage Emergency Services function to the Manage Traffic function. It contains data about incidents and the preemption requests needed by emergency vehicles. The data flow consists of the following data items each of which is defined in its own DDE:

dre_data_for_incident
+ em_data_for_incident
+ em_to_device_control
+ barrier_system_activation_request_from_emerg
+ safeguard_to_device_control
+ safeguard_system_to_traffic_data

+ roadway_information_data_to_traffic
+ emergency_route_request

em_data_from_traffic

This data flow is sent from the Manage Traffic function to the Manage Emergency Services function. It contains the following items each of which is defined in its own DDE:

emergency_traffic_control_response
+ hov_lane_violation
+ incident_data_for_dre
+ incident_data_for_em
+ incident_video_for_emergency_services
+ traffic_data_for_emergency_services
+ traffic_data_for_em_response
+ vehicle_emissions_alert
+ wrong_way_vehicle_detection
+ roadway_information_status_from_traffic
+ barrier_system_status_to_emerg
+ barrier_system_status_to_emerg_veh
+ traffic_data_for_dre
+ emergency_route_response
+ roadway_detours_and_closures_for_em

em_operational_data

This data flow contains information about the incidents that have been responded to by the Emergency Management function. There are two sets of data, one containing detailed information about the incident such as specific location and number of persons involved. Another set containing general information such as time and date of the incident will also be used. The data flow consists of the following data items each of which is defined in its own DDE:

archive_provide_emergency_service_allocation_data
+ emergency_service_log_for_archive
+ archive_manage_emergency_vehicle_data
+ sensor_data_for_archive
+ surveillance_data_for_archive
+ threat_data_for_archive
+ disaster_data_for_archive
+ evacuation_data_for_archive

em_operational_data_attributes

This data flow is used to provide the meta data included with the emergency management operational data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data (such as status of the operational equipment) This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

em_resource_request

This flow contains a request from emergency management for specific resources that emergency management has been told are available for use.

em_resource_request_from_traffic

This data flow is used to request emergency management resources that can be used to divert traffic, create detours, and otherwise manage traffic. This may include a equipment to clean a scene or patrol cars to create a traffic gap so debris can be safely removed, or officers to support traffic control.

em_resource_response

This flow contains a response to emergency management about specific resources that emergency management has requested for use.

em_resource_response_to_traffic

This data flow is sent to the Manage Traffic function from the Manage Emergency Services function to provide the status of the requested resources, including availability, contact information of the agency responding, and deployment status.

em_to_device_control

This data flow is sent from the Manage Emergency Services function to the Manage Traffic function. It contains data about the preemption requests needed by emergency vehicles. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_traffic_control_request
+ emergency_vehicle_preemptions
+ barrier_system_control_from_emerg_veh

em_to_payment

This data flow contains information going from the Manage Emergency Services function to the Provide Electronic Payment Services function. It consists of the following items each of which is defined in its own DDE:

wide_area_alert_notification_for_tolls
+ evacuation_toll_change_request

em_to_vehicle_incident_scene_information

This data flow conveys relevant incident information from emergency personnel out to nearby equipped personal vehicles. This includes the nature of the incident and changes to traffic flow patterns, e.g. detours.

emergency_center_identity

This data flow and contains the identity of an emergency center (i.e. an emergency management function) that is either sending data about incidents in its own local area or is receiving data about incidents in the area served by the local function.

emergency_data_archive

This data store is used to hold data that is to be archived by the Manage Archived Data function. This data includes information, such as, incident characteristics and emergency management response data. The data store contains the following data items each of which is defined in its own DDE:

em_archive_catalog
+ em_operational_data
+ em_operational_data_attributes

emergency_data_for_centers

This data flow is used within the Provide Driver and Traveler Services function. It contains information about incidents and emergency situations for transmission to other operational centers. It consists of the following items each of which is defined in its own DDE:

wide_area_alert_notification_for_travelers
+ deactivate_traveler_information_restrictions_for_travelers
+ traveler_information_restrictions_for_travelers
+ care_facility_status_for_isp
+ evacuation_data_for_isp
+ incident_details_from_media
+ shelter_information_to_travelers
+ disaster_transportation_system_status_for_isp
+ evacuation_transportation_system_status_for_isp
+ emergency_travel_service_update
+ traffic_incident_data_for_isp
+ transit_evacuation_data_for_isp
+ other_isp_emergency_data
+ incident_information

emergency_data_for_emergency_operations

This data flow is used within the Provide Driver and Traveler Services function and contains information about incidents and emergency situations for use in the emergency operations application. It consists of the following items each of which is defined in its own DDE:

wide_area_alert_notification_for_travelers
+ deactivate_traveler_information_restrictions_for_travelers
+ traveler_information_restrictions_for_travelers
+ care_facility_status_for_isp

+ evacuation_data_for_isp
+ incident_details_from_media
+ shelter_information_to_travelers
+ disaster_transportation_system_status_for_isp
+ evacuation_transportation_system_status_for_isp
+ emergency_travel_service_update
+ traffic_incident_data_for_isp
+ transit_evacuation_data_for_isp
+ other_isp_emergency_data
+ incident_information

emergency_data_for_other_TMC

This data flow is used within the Manage Traffic function and contains the portion of a strategy that gives preemption to emergency vehicles that relates to roads (surface streets) and highways that are outside the area served by the local TMC. This data will be sent to the appropriate other TMCs so that they can implement the requested preemption measures to give the emergency vehicles preemption throughout their route. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_traffic_control_request
+ selected_emergency_vehicle_strategy

emergency_data_for_transit

This data flow provides information about current incidents to be used by the Manage Transit function. It contains the following data item which is defined in its own DDE:

incident_details

emergency_data_request

This data flow shall allow an emergency service provider to request additional information from the vehicle following emergency notification. It shall allow the vehicle and driver to carry on a continuous dialogue with an emergency operator to make sure that the emergency service providers have the information they need to be well prepared to handle the incident. It shall also allow the travelers in a vehicle to request operation of remote controlled security functions of a vehicle such as a door unlocking function. It includes the following items each defined in its own DDE:

request_for_additional_data

emergency_disaster_data

This data flow is used within Emergency Management Disaster Response function. It contains the data regarding the type of disaster and related information including the current conditions or status of the transportation infrastructure. The data contained in the flow is used to assist in developing a coordinated disaster response and recovery plan. The data flow consists of the following data item which is defined in its own DDE:

emergency_input_for_disaster
+ evacuation_status_for_disaster_response
+ disaster_transportation_system_status

emergency_disaster_response_plan

This flow contains the set of disaster response and recovery plans from traffic management, transit management, maintenance and construction, other emergency management, etc. This data is forwarded to the local manage emergency response function for implementation. It is also sent to evacuation assessment functions, should an evacuation also be required. The data flow consists of the following data items which are defined in their own DDE:

rail_disaster_response_plan
+ transit_disaster_response_plan
+ oem_disaster_response_plan
+ m_and_c_disaster_response_plan
+ traffic_disaster_response_plan

emergency_evacuation_data

This data flow is used within Emergency Management Disaster Response function. It contains the data regarding the type of situation requiring an evacuation and related information including the current conditions or status of the transportation infrastructure. The data contained in the flow is used to assist in developing a coordinated evacuation plan. The data flow consists of the following data items which are defined in their own DDE:

emergency_input_for_disaster
+ emergency_disaster_response_plan
+ evacuation_area
+ evacuation_schedule
+ evacuation_transportation_system_status

emergency_evacuation_plan

This flow contains the set of evacuation plans from traffic management, transit management, maintenance and construction, other emergency management, etc. This data is forwarded to the manage evacuation function for implementation. The data flow consists of the following data items which are defined in their own DDE:

rail_evacuation_plan
+ transit_evacuation_plan
+ oem_evacuation_plan
+ m_and_c_evacuation_plan
+ traffic_evacuation_plan
+ emergency_input_for_disaster
+ shelter_information
+ evacuation_area

emergency_evacuation_status
This flow contains the evacuation status report and the evacuation plan. This data is forwarded to back to assess system status to assist in evaluating the current status of the transportation system. The data flow consists of the following data items which are defined in their own DDE:

emergency_evacuation_plan
+ evacuation_status_report

emergency_info_requests_attributes
This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data attribute information to the data archive about the requests for emergency traveler information. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

emergency_info_requests_for_archive
This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about requests for emergency traveler information input by the traveler via a personal device, vehicle, kiosk, or traveler telephone/ telecommunications-based information systems. It consists of the following data items each of which is defined in its own DDE:

list_size{traveler_emergency_information_request
+ traveler_personal_emergency_information_request
+ vehicle_emergency_information_request
+ traveler_telecomm_emergency_information_request}

emergency_information_request
This data flow is used by several ITS functions to request emergency traveler information. It will be accompanied by other data flows to provide the origin and hence the return destination for the retrieved data.

emergency_input_for_disaster
This data flow contains a status report of the implemented disaster response and recovery plan. It is sent to the disaster management functions so that modifications to the existing response plan can be made based on the current information available.

emergency_status_feedback

emergency_message_auto_output
This data flow is sent from the Provide Vehicle Monitoring and Control function to the Provide Driver and Traveler Services function. It provides data for the display of the response from the Emergency Management System to a previously submitted emergency request.

emergency_message_driver_output
This data flow is used within the Provide Driver and Traveler Services function. It provides data for the display of the response from the Emergency Management System to an emergency request previously submitted by the driver.

emergency_message_traveler_output
This data flow is used within the Provide Driver and Traveler Services function. It provides data for the display of the response from the Emergency Management System to an emergency request previously submitted by the traveler.

emergency_request
This data defines the type of emergency to which a response is being made, e.g. road accident with no casualties, road accident with casualties, road accident with fatalities, off road/highway fire, vehicle fire, off road/highway explosion, vehicle explosion, Public Transport vehicle(s) involved, etc.

emergency_request_driver_acknowledge
This data flow is used by the Manage Emergency Services function to acknowledge that the request for emergency services previously sent by the driver has been received and is therefore sent to the Provide Driver and Traveler Services function for

emergency_request_driver_details
This data flow is used by the Provide Driver and Traveler Services function to send data about an emergency declared by a driver to the Manage Emergency Services function. It contains the following data items each of which is defined in its own DDE:

date
+ driver_personal_emergency_request
+ time

emergency_request_from_transit_operator
This data flow is sent from the transit vehicle operator on-board a transit vehicle to the Manage Emergency Services function and includes a silent alarm request for emergency assistance.

emergency_request_personal_traveler_acknowledge
This data flow is used by the Manage Emergency Services function to confirm that the request for emergency services previously sent by the traveler has been received from a personal device and is therefore sent to the Provide Driver and Traveler Services function for output. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag

emergency_request_personal_traveler_details
This data flow is used by the Provide Driver and Traveler Services function to send data about an emergency declared by a traveler using a personal device to the Manage Emergency Services function. It contains the following data items each of which is defined in its own DDE:

date
+ time
+ traveler_personal_emergency_request

emergency_request_vehicle_acknowledge
This data flow is used by the Manage Emergency Services function to acknowledge that the request for emergency services previously sent automatically by the vehicle through processes in the Provide Vehicle Control and Monitoring function has been received. It is sent to the Provide Driver and Traveler Services function for output.

emergency_request_vehicle_details
This data flow is used by the Provide Vehicle Control and Monitoring function to send data about an emergency declared by a vehicle, perhaps an automated mayday function, to the Manage Emergency Services function. This data flow may be sent more than once per incident to allow a follow-up request or to update the vehicle location. This data flow contains the following data items each of which is defined in its own DDE:

date
+ time
+ vehicle_emergency_request

emergency_response_data_for_communications
This data flow is used within the Manage Emergency Services function. It contains details of a reported emergency and the response plan for use by the process that communicates with drivers, travelers, the Manage Transit function, and the emergency telephone service or E911 operator, when they have reported emergencies. It may also contain a set of commands to send to the vehicle's security system or a request for additional data from the vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_response_plan_data
+ identified_emergency_details
+ emergency_data_request

emergency_response_data_for_management
This data flow is used within the Manage Emergency Services function. It contains details of a reported emergency and the response plan for use by the process that manages emergency responses. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_response_plan_data

+ identified_emergency_details
+ disaster_coordination_response_data

emergency_response_plan_data
This data flow is used within the Manage Emergency Services function and contains a pre-planned set of procedures directing an appropriate response to an emergency. The data supports various levels of plans including overall regional plans documenting coordinated multi-agency response to major incidents. This data flow is used to provide a source of information on emergency responses to other ITS functions, and to the emergency services dispatch facility.

emergency_response_to_transit_operator
This data flow is sent to the transit vehicle operator on-board a transit vehicle from the Manage Emergency Services function and contains acknowledgment of an emergency previously declared by the transit vehicle operator.

emergency_route_request
This data flow contains request for traffic management to provide a route to support emergency operations during a disaster. The request could be for a long term or short term route. It might also be a request for priority or preemptive routes. In addition it could include a request to close a route for the exclusive use of emergency vehicles.

emergency_route_response
This data flow contains a route provided by traffic management to support emergency operations during a disaster. The route could be for a long term or short term duration. It might also include priority or preemptive signal controls or the exclusive right to use a specific route.

emergency_routing_information
This data flow is used within the Manage Emergency Services function. It includes current routing status, current vehicle routes, road network conditions that may influence selected routes, and current preemption status for use by emergency system operators.

emergency_routing_input
This data flow is used within the Manage Emergency Services function. It includes suggested route information, routing parameter changes, and preemption requests from emergency system operators.

emergency_service_action_details
This data flow is used within the Manage Emergency Services function. It contains details of the responses to each emergency that are stored in the log of emergency service actions. The data flow consists the following items, each of which is defined in its own DDE:

emergency_service_allocations
+ emergency_service_type_requested
+ emergency_service_type_override
+ emergency_vehicle_route
+ emergency_vehicle_arrival_time
+ identified_emergency_details

emergency_service_action_log
This data store is used within the Manage Emergency Services function. It contains the log of actions for each incident processed within the Manage Emergency Services area of ITS. The data store consists the following items, each of which is defined in its own DDE:

list_size
+ list_size{emergency_service_action_details
    + incident_action_time}

emergency_service_allocation_criteria
This store is used within the Manage Emergency Services function and contains the default allocations of emergency services type (or types) for each type of incident. It contains the following data items each of which is defined in its own DDE:

incident_type
+ emergency_service_allocations
+ enforcement_agency_allocations
+ violation_type

emergency_service_allocation_data
This data flow is used within the Manage Emergency Services function and contains a pre-planned set of procedures directing an appropriate emergency services response to an incident. It consists of the following data item which is defined in its own DDE:

emergency_service_allocations

emergency_service_allocation_data_output
This data flow is used within the Manage Emergency Services function. It contains the output from the store management process of the contents of the store that holds the data defining the allocation of emergency services to each type of incident.

emergency_service_allocation_data_output_request
This data flow is used within the Manage Emergency Services function and contains the request for the store management process to output the contents of the store that holds the data defining the allocation of emergency services to each type of

incident. It consists of the following data item which is defined in its own DDE :

violation_type

emergency_service_allocation_data_request
This data flow is used within the Manage Emergency Services function and contains a request for the pre-planned set of procedures directing an appropriate response to an emergency. It consists of the following data item which is defined in its own DDE:

incident_type

emergency_service_allocation_data_updates
This data flow is used within the Manage Emergency Services function and contains an update to the pre-planned set of procedures directing an appropriate response to an emergency. It consists of the following data items each of which is defined in its own DDE:

incident_type
+ emergency_service_allocations

emergency_service_allocation_override
This data flow contains details of an override of the automatic allocation of emergency services to an incident. It contains the following data items each of which is defined in its own DDE:

incident_number
+ emergency_service_type_override

emergency_service_allocations
This data item is used within the Manage Emergency Services function and defines the type (or types) of emergency service required for a particular emergency incident. The types may be any of the following: none, cancel previous request; police; fire; ambulance; towing; paramedics; wrecking crew; aircraft fire service; rail breakdown crew; SWAT.

emergency_service_log_for_archive
This data flow is used within the Manage Emergency Services function and contains the output of the emergency services action log. It contains all the data up to the current time, shown by incident number. The data flow consists of the following data item which is defined in its own DDE:

emergency_service_action_log

emergency_service_log_output
This data flow is used within the Manage Emergency Services function and contains the output of the emergency services action log. It is output following a request from the emergency services operator and contains all the data up to the current time, shown by incident number. The data flow consists of the following data item which is defined in its own DDE:

emergency_service_action_log

emergency_service_log_output_request
This data flow is used within the Manage Emergency Services function and contains the request from the emergency services operator for the output of the current contents of the emergency services action log.

emergency_service_type_override
This data flow defines the type (or types) or emergency service allocated by the Emergency Services operator for a particular emergency incident. It has the same range of values as the data for emergency service allocations, but as this is an operator override of the standard allocation, it will not have the same value for each incident.

emergency_service_type_requested
This data item defines the type (or types) of emergency service requested for a particular emergency incident. It has the same range as the emergency_service_allocations data item but may not have the same value for each incident.

emergency_status_feedback
This flow contains a status response on the current management conditions of an emergency. It is sent to the determine coordinated response so that the status can be reassessed allowing response to be improved. The data flow consists of the following data items which are defined in their own DDE:

rail_emergency_status_report
+ transit_emergency_status_report
+ traffic_emergency_status_report
+ oem_emergency_status_report

emergency_status_report_for_oem
This flow contains the status of emergency management in supporting an emergency event.

emergency_to_m_and_c
This DFD flow represents the data flows from Manage Emergency Services to Manage Maintenance and Construction. The DFD flow consists of the following data flows each of which is defined in its own DDE:

m_and_c_plan_feedback_from_emerg
+ incident_info_from_emerg
+ incident_response_status_from_emerg
+ m_and_c_resource_request_from_emerg
+ roadway_maint_action_req_from_emerg
+ security_sensor_equip_status_for_m_and_c
+ security_surveillance_equip_status_for_m_and_c
+ threat_info_for_maint
+ infrastructure_integrity_status_for_maint
+ safeguard_system_equip_status_for_m_and_c
+ wide_area_alert_notification_for_maint
+ disaster_and_evacuation_data_to_m_and_c
+ transportation_system_status_to_m_and_c
+ evacuation_information_for_m_and_c

emergency_traffic_control_request

This data flow is sent from the Manage Emergency Services function to the Manage Traffic function. It contains a list of the route segments that have been provided for use by an emergency vehicle, together with the arrival time at each segment. The data will be used by the Manage Traffic function to generate changes to the current traffic management strategy to give the emergency vehicle preemption. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ list_size + list_size{route_segment_identity + route_segment_estimated_arrival_time}
+ time

emergency_traffic_control_response

This data flow is sent from the Manage Traffic function to the Manage Emergency Services function. It contains a list of the route segments that have been provided for use by an emergency vehicle and indicates the traffic management strategy that is in effect for these route segments.

date
+ list_size
+ list_size{route_segment_identity + route_segment_estimated_arrival_time}
+ time
+ selected_emergency_vehicle_strategy

emergency_transit_fares

This data flow contains emergency fare information for use by transit. The flow contains transit fares to be used in the current emergency.

disaster_response_transit_fares
+ evacuation_transit_fares

emergency_transit_route

This data flow contains emergency routing information for use by transit. The flow contains transit routes to be used in the current emergency.

disaster_response_transit_routes
+ evacuation_transit_routes

emergency_transit_schedule

This data flow contains emergency schedule information for use by transit. The flow contains transit schedules to be used in the current emergency.

disaster_response_transit_schedule
+ evacuation_transit_schedule

emergency_transit_schedule_information_for_traffic

This data flow contains information on transit service or schedule changes that have been put into effect in response to disasters or other emergencies. The data flow consists of the following data items which are defined in their own DDE:

transit_schedule_data

emergency_travel_service_update

This data flow provides updates to information on other travel services (e.g. yellow pages services) as situations change during an emergency, including disasters and evacuation scenarios. The types of service update information being sent include adjustments to availability of services, changes in hours, etc.

emergency_traveler_data

This data store contains information collected from various sources to include incidents and emergency situations that could affect travelers. It contains the following data items each of which is defined in its own DDE:

wide_area_alert_notification_for_travelers
+ deactivate_traveler_information_restrictions_for_travelers

+ traveler_information_restrictions_for_travelers
+ care_facility_status_for_isp
+ evacuation_data_for_isp
+ fm-incident_details
+ shelter_information_to_travelers
+ disaster_transportation_system_status_for_isp
+ evacuation_transportation_system_status_for_isp
+ emergency_travel_service_update
+ traffic_incident_data_for_isp
+ transit_evacuation_data_for_isp
+ foisp-emergency_data
+ incident_information

emergency_traveler_data_collected_for_personnel

This data flow is used within the Provide Driver and Traveler Services function and contains information for use by personnel about the emergency and incident information collected. The data flow consists of the following data item which is defined in its own DDE:

emergency_traveler_data

emergency_traveler_data_collection_parameters

This data contains parameters to be used to govern emergency traveler data collection to support traveler services (trip planning, broadcast data, etc.).

emergency_traveler_information_parameters

This data contains parameters to be used to govern the dissemination of emergency traveler information (wide area alerts, evacuation orders, emergency/incident information, overall system status, etc.) to kiosks, personal devices, in-vehicle units, and traveler telephone/telecommunications information systems.

emergency_vehicle_acknowledge

This data flow is used within the Manage Emergency Services function. It contains the acknowledgment of data received by the emergency vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_vehicle_route
+ emergency_vehicle_arrival_time
+ incident_status_update

emergency_vehicle_arrival_time

This data flow is used within the Manage Emergency Services function. It contains the time at which it is predicted that the emergency vehicle will arrive at the incident. The data flow consists of the following data item which is defined in its own DDE:

time

emergency_vehicle_availability

This data flow contains a listing of the emergency vehicles that are available for use. It consists of the following data items each of which is defined in its own DDE:

emergency_vehicle_status_data_for_responses

emergency_vehicle_dispatch_data

This data flow is used within the Manage Emergency Services function. It contains data required to dispatch an emergency vehicle to the scene of an incident. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_vehicle_identity
+ emergency_vehicle_type
+ emergency_vehicle_incident_details
+ emergency_vehicle_response_request

emergency_vehicle_dispatch_failure

This data flow is used within the Manage Emergency Services function and contains the indication that the dispatch of emergency vehicles in response to an incident has failed because insufficient vehicles of the right type could be found. The data flow only shows the type(s) for which the dispatch failed and/or the numbers of each type that it was not possible to dispatch. It consists of the following data items each of which is defined in its own DDE:

incident_number
+ emergency_vehicle_type
+ emergency_vehicle_number

emergency_vehicle_dispatch_request

This data flow is used within the Manage Emergency Services function and contains data for the request for an emergency vehicle dispatch. The data flow specifies the information needed to respond to a particular incident. It consists of the following data items which are defined in their own DDEs:

emergency_center_identity

+ emergency_vehicle_identity
+ emergency_vehicle_status_code
+ time
+ date
+ emergency_vehicle_incident_details

emergency_vehicle_dispatch_response
This data flow provides current en route status and requests any additional current incident response status.

emergency_vehicle_dispatch_status
This data flow is used within the Manage Emergency function and shows whether or not the requested emergency vehicle dispatch was successful. The confirmation flag data flow is used for this purpose. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ emergency_vehicle_type
+ emergency_vehicle_number
+ incident_number

emergency_vehicle_enroute
This data flow provides current en route status to be used to initiate signal preemption and send warnings to surrounding vehicles that this vehicle is in the area and is responding to an incident.

emergency_vehicle_identity
This data flow is used within the Manage Emergency Services function. It contains the identity of an individual emergency vehicle. This data is used by processes within the function to identify the source and/or ownership of other data.

emergency_vehicle_incident_details
This data flow is used within the Manage Emergency Services function and contains details of an incident to which a response is required. It consists of the following items of data each of which is defined in its own DDE:

incident_duration
+ incident_location
+ incident_number
+ incident_severity
+ incident_start_time
+ incident_type
+ incident_description

emergency_vehicle_intersection_preemption
This data flow contains data necessary for an emergency services vehicle to be given preemption at an indicator that is particular set of intersection control signals. The data flow is sent directly from the emergency vehicle to the traffic signal controller, which is assumed to be capable of giving preemption to the correct phase(s) for any received preemption request.

emergency_vehicle_number
This data flow contain the number of vehicles of a particular type that are needed to respond to a particular incident.

emergency_vehicle_operational_data
This data flow is sent from the manage Emergency Services function and contains information about the movements of emergency vehicles while attending incidents, and therefore shows the usage of traffic control preemption routes, the times at which the vehicles passed various points in the road and highway network etc.

emergency_vehicle_pedestrian_preemption
This data flow contains data necessary for an emergency services vehicle to be given preemption at an indicator that is particular set of pedestrian signals. The data flow is sent directly from the emergency vehicle to the pedestrian controller, which is assumed to be capable of giving preemption to the correct phase.

emergency_vehicle_preemptions
This data flow is sent by the Manage Emergency Services function to the Manage Traffic function. It contains the data necessary for an individual emergency services vehicle and the stream of traffic in which the vehicle is traveling to be given preemption at a traffic signal controller. This will be at the controller for a particular road junction, pedestrian crossing, or highway entrance ramp. The data is sent directly from the emergency vehicle to the next controller along its route and therefore is not subject to any centralized coordination. Local coordination may be provided if there are links between adjacent controllers. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_vehicle_intersection_preemption
+ emergency_vehicle_pedestrian_preemption
+ emergency_vehicle_ramp_preemption
+ emergency_vehicle_sign_preemption

emergency_vehicle_proximity
This data flow is sent by the Manage Emergency Services function to the Provide Vehicle Monitoring and Control function. It contains the alert message broadcast to surrounding vehicles that an emergency vehicle is in the area and is responding to an incident.

emergency_vehicle_ramp_preemption

This data flow is sent by the Manage Emergency Services function to the Manage Traffic function. It contains the data necessary for an emergency services vehicle to be given preemption at an indicator that is particular set of highway entry ramp control signals. The data flow is sent directly from the emergency vehicle to the ramp controller, which is assumed to be capable of giving preemption to the correct ramp or lane if multiple ramps or lanes are involved.

emergency_vehicle_response_request

This data flow is used within the Manage Emergency Services function and contains data for the request for an emergency vehicle to be processed by the Select Response Mode function. The data flow specifies the information needed to respond to a particular incident. It consists of the following data items which are defined in their own DDEs:

emergency_center_identity
+ emergency_vehicle_identity
+ emergency_vehicle_status_code
+ time
+ date
+ emergency_vehicle_incident_details
+ weather_service_emergency_information
+ traffic_data_for_emergency_services

emergency_vehicle_route

This data flow contains details of the emergency vehicle's route and is used to trigger a special 'green wave' route for the emergency vehicle. The data flow consists of the following items each of which is described in its own DDE:

route
+ emergency_request
+ vehicle_identity

emergency_vehicle_route_assignment

This data flow contains details of the emergency vehicle's route and is used to trigger signal preemption along the route for the emergency vehicle. The data flow consists of the following items each of which is described in its own DDE:

route
+ emergency_request
+ vehicle_identity

emergency_vehicle_route_request

This data flow is used to request a dynamic route for an emergency vehicle. It contains the following data items each of which is defined in its own DDE:

trip_request
+ vehicle_identity
+ emergency_request
+ emergency_vehicle_response_request
+ vehicle_location_for_emergency_services

emergency_vehicle_sign_preemption

This data flow is sent from the Manage Emergency Services function to the Manage Traffic function and contains data necessary for an emergency services vehicle to have a message output giving it preemption at an indicator that is a particular dynamic message sign (DMS) or fixed message sign that has a transit priority message that can be displayed. The data flow is sent directly from the emergency vehicle to the sign controller and may consist of either a single character that will enable the sign controller to output the correct message from its list of known messages, or a string of characters for a controller driving a DMS.

emergency_vehicle_status_code

This data flow indicates the current status of an emergency vehicle that reflects dynamic assignment of vehicles to incidents. This status will reflect the vehicle's current operating condition and will determine such things as its availability to respond to emergencies, and its current activity in response to an emergency. Status will reflect defined situations such as: Out of service, Assigned to Incident (En Route), At Incident, At Quarters, Disabled (possibly due to its own involvement in an incident), At Station, etc.

emergency_vehicle_status_data

This data store is used within the Manage Emergency Services function. It contains details of the status reports for emergency vehicles consisting of a predefined status code, the vehicle location and a time and date stamp. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{emergency_vehicle_status_details}

emergency_vehicle_status_data_change

This data flow is used within the Manage Emergency function and contains a status report for a single emergency vehicle. This will have been changed as a result of the vehicle having been selected for dispatch. The data flow consists of the following data item which is defined in its own DDE:

emergency_vehicle_status_details

emergency_vehicle_status_data_for_assessment

This data flow is used within the Manage Emergency Services function and represents a status report for a single emergency vehicle. The data will be used to analyze the response status based on new input from the emergency vehicle driver. It consists of the following data item which is defined in its own DDE.

emergency_vehicle_status_details

emergency_vehicle_status_data_for_dispatch

This data is used within the Manage Emergency function and contains a status report for a single emergency vehicle. It is used as further information about the vehicle by the process responsible for vehicle dispatch. The data flow consists of the following data item which is defined in its own DDE:

emergency_vehicle_status_details

emergency_vehicle_status_data_for_responses

This data is used within the Manage Emergency Services function and represents a current status report for a single emergency vehicle. The data will be used to determine which vehicles are available and can be allocated to respond to a particular emergency. The data flow consists of the following data item which is defined in its own DDE:

emergency_vehicle_status_details

emergency_vehicle_status_data_needed

This data flow is used within the Manage Emergency function and contains a request for the current status of a specified emergency vehicle. This data will be updated using data provided by the vehicle's driver. The data flow consists of the following data item which is defined in its own DDE:

emergency_vehicle_identity

emergency_vehicle_status_data_request

This data flow is used within the Manage Emergency function and contains a request for the current status of an emergency vehicle of a specified type. This data will be used to select the appropriate vehicle(s) to respond to an emergency. The data flow consists of the following data item which is defined in its own DDE:

emergency_vehicle_type

emergency_vehicle_status_data_update

This data flow is used within the Manage Emergency function and contains a status report for a single emergency vehicle. This will have been updated as a result of a status report having been received from the emergency vehicle driver. The data flow consists of the following data item which is defined in its own DDE:

emergency_vehicle_status_details

emergency_vehicle_status_details

This data flow is used within the Manage Emergency Services function. It contains emergency vehicle status details comprising a predefined status code, the vehicle's tracking data and a time and date stamp. Note that the time and date stamp applies to the last time that the status code was updated, and not the vehicle tacking data, which carries its own time and date stamp showing when the location was last reported. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ emergency_vehicle_identity
+ emergency_vehicle_status_code
+ emergency_vehicle_tracking_data
+ emergency_vehicle_type
+ incident_number
+ time

emergency_vehicle_suggested_route

This data flow provides a suggested route for a dispatched vehicle that takes into account current traffic conditions, the current location and routes of other responding vehicles, and any special traffic control measures that are currently in effect to speed the response and increase the safety of emergency personnel. This data flow identifies the emergency vehicle and provides turn-by-turn route information.

emergency_vehicle_tracking_data

This data flow is within the Manage Emergency function and contains the current location of an emergency vehicle, which includes the time at which the location measurement was taken. In addition this data flow contains operational data for the emergency vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ vehicle_location_for_emergency_services
+ emergency_vehicle_operational_data

emergency_vehicle_type

This data flow is used within the Manage Emergency Services function and contains the type code for an emergency vehicle. Examples of the types of emergency vehicle data that could be supported by the code are ambulance with no special equipment, ambulance with paramedics and their equipment, ambulance for special services, e.g. mining disaster, a fire engine with its own pump, a fire engine which is a water tanker, a fire engine which is a ladder truck, police patrol car, police patrol van, tow vehicle, i.e. one that can tow another that will run on its own wheels, and wrecking truck.

emergency_verification_from_operator

This data flow is used within the Manage Emergency Services function. It contains verification from operators that collected incident data should be forwarded for a response by one or more responding agencies.

emissions_archive_catalog

This data flow is used to provide the description of the data contained in the collection of emissions data that has been stored and made available for the Manage Archive Function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g. time range of entries, number of entries; or sample data products.

emissions_archive_catalog_request

This data flow from the Manage Archive Data function contains the request for a catalog of the data held by the Manage Traffic function. The request for a catalog may include the description of types of data the archive is interested in or a time frame over which the requested information may be available.

emissions_archive_data

This data flow is sent to the Manage Archive data function from the Manage Traffic function. It contains pollution data collected from sensors on vehicles and located at the roadside. It consists of the following data items each of which are defined in its own DDE:

emissions_archive_catalog
+ emissions_data_for_archive

emissions_archive_data_request

This data flow from Manage Archive Data function contains the request for data held by the Manage Traffic function. The request for data may include the description of the data required or a time frame over which the requested information may be available.

emissions_archive_request

This data flow from Manage Archive Data function contains the request for data collected and stored by Manage Traffic function. The request can be a request for catalog of the data held by the function or a request for the data itself. This data flow consists of the following data items each of which is defined in its own DDE:

emissions_archive_catalog_request
+ emissions_archive_data_request

emissions_archive_status

This data flow is sent from the Manage Archived Data function to the Manage Traffic function. It is the status returned when emissions archive data is sent from the Manage Traffic function to the Manage Archived Data function.

emissions_data_archive

This data store is used within the Manage Traffic function to hold data that is to be archived by the Manage Archived Data function. This data includes emissions and pollution data. The data store contains the following data items each of which is defined in its own DDE:

emissions_archive_catalog
+ archive_pollution_state_data
+ archive_pollution_state_data_attributes
+ archive_pollution_reference_data
+ archive_pollution_reference_data_attributes
+ archive_pollution_data
+ archive_pollution_data_attributes
+ archive_emissions_reference_data
+ archive_emissions_reference_data_attributes
+ archive_emissions_state_data
+ archive_emissions_state_data_attributes
+ archive_emissions_data
+ archive_emissions_data_attributes

emissions_data_for_archive

This data flow is sent from the Manage Traffic to the Manage Archive Data function. It is used to provide detailed information on emissions and pollution data. This data flow consists the following items each of which is defined in its own DDE:

archive_pollution_state_data
+ archive_pollution_state_data_attributes
+ archive_pollution_reference_data
+ archive_pollution_reference_data_attributes
+ archive_pollution_data
+ archive_pollution_data_attributes
+ archive_emissions_reference_data

+ archive_emissions_reference_data_attributes
+ archive_emissions_data
+ archive_emissions_data_attributes
+ archive_emissions_state_data
+ archive_emissions_state_data_attributes

emissions_data_violation
This data flow is used to hold data on the actual atmospheric pollutant(s) that are outside the safe standards for air quality and their actual level(s).

emissions_output_message
This data flow is used within the Manage Traffic function and contains the data which the Manage Emissions facility wants output to alert a driver to the fact that the vehicle is generating emissions outside of the standard limits. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ dms_emissions_message

emissions_reference_data
This store is used by processes within the Manage Traffic function and contains data about acceptable and tolerable vehicle emissions levels. It consists of the following data items each of which is defined in its own DDE:

emissions_vehicle_acceptance_conditions
+ emissions_vehicle_acceptance_data

emissions_reference_data_archive_request
This data flow is used within the Manage Traffic function and is a request for the output of the current contents of the store of emissions reference data to be sent to the archive data management interface process.

emissions_reference_data_output
This data flow is used within the Manage Traffic function and contains the current contents of the store of emissions reference data for output to the emissions operations personnel via the interface process. It consists of the following data items each of which is defined in its own DDE:

emissions_vehicle_acceptance_conditions
+ emissions_vehicle_acceptance_data
+ state_contact_data

emissions_reference_data_request
This data flow is used within the Manage Traffic function and is a request for the output of the current contents of the store of emissions reference data to be sent to the emissions operations personnel interface process.

emissions_reference_data_update
This data flow is used within the Manage Traffic function and contains updates to the contents of the store of emissions reference data.

emissions_state
This store is used within the Manage Traffic function to hold the current levels of emissions collected at the roadside from particular vehicle types. It consists of the following data item that provides the actual levels of various pollutants, which is defined in its own DDE:

vehicle_emissions_state_collection

emissions_state_data_output
This data flow is used within the Manage Traffic function and contains the current contents of the store of emissions state data for output to the emissions operations personnel via the interface process. It consists of the following data items each of which is defined in its own DDE:

current_carbon_monoxide_pollution
+ current_hydrocarbon_pollution
+ current_nitrogen_oxides_pollution
+ current_ozone_pollution
+ current_particulate_pollution
+ current_pollution_location
+ current_sulfur_dioxide_pollution
+ vehicle_type

emissions_state_data_output_request
This data flow is used within the Manage Traffic function and is a request for the output of the current contents of the store of emissions state data to be sent to the emissions operations personnel interface process.

emissions_vehicle_acceptance_conditions
This data flow contains the vehicle operating conditions at which the associated levels of emissions must not be exceeded.

emissions_vehicle_acceptance_data

This data flow contains the levels of emissions which are acceptable, i.e. the presence of pollutants from vehicles at or below these levels will not create an out of specification condition that may ultimately lead to a pollution incident being reported. A pollution incident will only be reported if the value for the particular pollutant is exceeded at the vehicle operating condition to which it applies.

enforcement_agency_address

This data flow contains the full postal address (including zip code) of an enforcement agency. This is one of the agency details that is used in the processing of violations reported by other processes in the ITS function.

enforcement_agency_allocations

This data item is used within the Manage Emergency Services function and defines the type (or types) or enforcement service required for a particular emergency incident. These may be as follows: none, cancel previous request; police; SWAT; special police (transit authority, port authority, etc.).

enforcement_agency_computer

This data flow is used within the Manage Emergency Services function and contains the computer telephone number of an enforcement agency. This number provides direct but password and encrypted access to a computer within an enforcement agency, and is one of the agency details that is used in the processing of violations reported by other processes in the ITS function.

enforcement_agency_contact

This data flow contains a character string that defines the method by which an enforcement agency shall be contacted with details of a violation. The character string may describe a piece data which may be an e-mail message, a postal service message, a voice based telephone call, or a fax message.

enforcement_agency_details

This data flow is used within the Manage Emergency Services function and contains the details of the access points for an enforcement agency. These access points comprise addresses, telephone numbers, etc. through which the agency may be sent information on violations that have been detected elsewhere within the ITS function. Not all entries may be present, and as a minimum only one is needed. The details are contained in the following data items each of which is defined in its own DDE:

enforcement_agency_address
+ enforcement_agency_computer
+ enforcement_agency_email
+ enforcement_agency_fax
+ enforcement_agency_name
+ enforcement_agency_phone
+ enforcement_agency_responsibility

enforcement_agency_email

This data flow is used within the Manage Emergency Services function and contains the e-mail address of an enforcement agency. This is one of the agency details that is used in the processing of violations reported by other processes in the ITS function.

enforcement_agency_fax

This data flow is used within the Manage Emergency Services function and contains the telephone number of the fax line for an enforcement agency. This is one of the agency details that is used in the processing of violations reported by other processes in the ITS function.

enforcement_agency_name

This data flow is used within the Manage Emergency Services function and contains the name of an enforcement agency. This is one of the agency details that is used in the processing of violations reported by other processes in the ITS function.

enforcement_agency_phone

This data flow is used within the Manage Emergency Services function and contains the voice line telephone number of an enforcement agency. This is one of the agency details that is used in the processing of violations reported by other processes in the ITS function.

enforcement_agency_responsibility

This data flow is used within the Manage Emergency Services function and contains the area for which a particular enforcement agency has responsibility in areas such as: commercial vehicles, traffic (general, not tolls), traffic tolls and parking, transit fares (collection and payment), etc.

enforcement_data_for_cv

This data store is used within the Manage Emergency Services function and contains details about the enforcement agency to which commercial vehicle violation data must be sent when it is received from processes in the Manage Commercial Vehicles function, and/or the State Department of Motor Vehicles (DMV) office from which vehicle registration data may be obtained. The details comprise the contacts (addresses, telephone numbers, fax numbers, e-mail addresses, etc.) for the enforcement agency and the DMV office, plus the method by which they should be contacted. The contact details will be stored in such a way that the actual violation data can be easily added to them before being sent to the enforcement agency. The data store contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details
+ state_contact_data

enforcement_data_for_emissions

This data store is used within the Manage Emergency Services function and contains details about the contacts (addresses, telephone numbers, fax numbers, e-mail addresses, etc.) for enforcement agencies and the method by which they should be contacted, plus details of the contacts at the state Department of Motor Vehicles (DMV) offices from which vehicle registration data can be obtained. The enforcement agencies are those to which about pollution violations should be sent when they are received from the Manage Traffic function. The contact details will be stored in such a way that the actual violation or vehicle license data can be easily added to them before being sent to the enforcement agency or the appropriate DMV. The data store contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details
+ state_contact_data

enforcement_data_for_fare_payment

This data store is used within the Manage Emergency Services function and contains details about the contacts (addresses, telephone numbers, fax numbers, e-mail addresses, etc.) for an enforcement agency and the method by which it should be contacted. This is the agency to which data should be sent about each transit fare payment violation when it is received from the Provide Electronic Payment Services function. The contact details will be stored in such a way that the actual violation data can be easily added to them before being sent to the enforcement agency. The data store contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details

enforcement_data_for_parking

This data store is used within the Manage Emergency Services function and contains details about the enforcement agency to which parking lot violation data must be sent when it is received from processes in the Provide Electronic Payment Services function, and/or the State Department of Motor Vehicles (DMV) office from which vehicle registration data may be obtained. The details comprise the contacts (addresses, telephone numbers, fax numbers, e-mail addresses, etc.) for the enforcement agency and the DMV office, plus the method by which they should be contacted The contact details will be stored in such a way that the actual violation data can be easily added to them before being sent to the enforcement agency. The data store contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details
+ state_contact_data

enforcement_data_for_roadside_fare_collection

This data store is used within the Manage Emergency Services function and contains details about the contacts (addresses, telephone numbers, fax numbers, e-mail addresses, etc.) for an enforcement agency and the method by which it should be contacted. This is the agency to which data should be sent about each transit fare violation that takes place at the roadside, i.e. a transit stop, when it is received from the Manage Transit function. The contact details will be stored in such a way that the actual violation data can be easily added to them before being sent to the enforcement agency. The data store contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details

enforcement_data_for_TM

This data store is used within the Manage Emergency Services function and contains details about the contacts (addresses, telephone numbers, fax numbers, e-mail addresses, etc.) for enforcement agencies and the method by which they should be contacted, plus details of the contacts at the state Department of Motor Vehicles (DMV) offices from which vehicle registration data can be obtained. The enforcement agencies are those to which about each high occupancy vehicle (hov) lane violations should be sent when they are received from the Manage Traffic function. The contact details will be stored in such a way that the actual violation or vehicle license data can be easily added to them before being sent to the enforcement agency or the appropriate DMV. The data store contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details
+ state_contact_data

enforcement_data_for_tolls

This data store is used within the Manage Emergency Services function and contains details about the enforcement agency(ies) to which toll violation data must be sent when it is received from processes in the Provide Electronic Payment Services function, and/or the State Department of Motor Vehicles (DMV) office from which vehicle registration data may be obtained. The details comprise the contacts (addresses, telephone numbers, fax numbers, e-mail addresses, etc.) for the enforcement agency and the DMV office and the method by which they should be contacted. The contact details will be stored in such a way that the actual violation data can be easily added to them before being sent to the enforcement agency. The data store contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details
+ state_contact_data

enforcement_data_for_vehicle_fare_collection

This data store is used within the Manage Emergency Services function and contains details about the contacts (addresses, telephone numbers, fax numbers, e-mail addresses, etc.) for an enforcement agency and the method by which it should be contacted. This is the agency to which data should be sent about each transit fare collection violation that takes place on-board a transit vehicle, when it is received from the Manage Transit function. The contact details will be stored in such a way that the actual violation data can be easily added to them before being sent to the enforcement agency. The data store contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details

env_and_weather_data

This data flow contains a collection of all environmental and weather data/information that is collected by the Manage Maintenance and Construction function. The data includes environmental sensor data, environmental probe data, weather service information, surface transportation weather information and road condition information. It consists of the following data items each of which is defined in its own DDE:

environmental_sensor_data
+ weather_service_information
+ surface_trans_weather_information
+ env_probe_info

env_and_weather_data_for_decision_support

This data flow contains environmental and weather information that will serve as an input to the maintenance decision support function. It consists of the following data item which is defined in its own DDE:

env_and_weather_data

env_and_weather_data_for_display

This data flow contains environmental and weather information that will be formatted for display to maintenance and construction center personnel. It consists of the following data item which is defined in its own DDE:

env_and_weather_data

env_and_weather_data_for_dissemination

This data flow contains environmental and weather information that will be formatted for dissemination to other agencies. It consists of the following data item which is defined in its own DDE:

env_and_weather_data

env_data_collection_parameters

This data flow contains parameters to define how the environmental and weather data is collected and formatted.

env_data_processing_parameters

This data flow contains parameters to define how the environmental and weather data is aggregated, filtered, fused, processed or analyzed.

env_info_dissemination_parameters

This data flow contains parameters to define how the environmental and road weather data is formatted, aggregated, or filtered for distribution to various organizations outside of the manage maintenance and construction function.

env_info_for_decision_support

This data flow contains processed environmental and road weather information for use in maintenance decision support. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions
+ analyzed_env_and_weather_data

env_info_for_display

This data flow contains environmental and road weather information that has been formatted for distribution to organizations external to the manage maintenance and construction function. This data flow is formatted for display to the maintenance and construction center personnel. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

env_info_for_maint_needs

This data flow contains processed environmental and road weather information for use in determining maintenance needs. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes

road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

env_info_for_mcv_mgmt

This data flow contains processed environmental and road weather information for use in managing the maintenance and construction vehicle fleet. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

env_info_for_road_network

This data flow contains processed environmental and road weather information for use in developing an overview of conditions on the road network. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

env_info_for_scheduling

This data flow contains processed environmental and road weather information for use in scheduling maintenance and construction activities. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

env_info_to_manage_mcv

This DFD flow represents the data flows from Manage Environmental Information to Manage M&C Vehicles and includes environmental information. It consists of the following items each of which is defined in its own DDE:

environmental_sensor_data_on_board
+ environmental_sensor_status_on_board
+ env_info_for_mcv_mgmt
+ env_info_for_road_network

env_info_to_roadway_m_and_c

This DFD flow represents the data flows from Manage Environmental Information to Manage Roadway M&C Activities and includes environmental information. It consists of the following items each of which is defined in its own DDE:

env_info_for_scheduling
+ env_info_for_maint_needs
+ env_and_weather_data_for_decision_support
+ env_info_for_decision_support
+ env_sensor_equip_status_for_m_and_c_from_center

env_probe_data

This data flow contains environmental conditions (e.g. temperature and precipitation) for a single network segment. The data has been aggregated based upon collection from a number of environmental probes on vehicles. The data also contains metadata describing how and when the data was collected (e.g. does it represent an aggregation of observations over a minute, or over an hour).

env_probe_data_for_infrastructure_repair_needs

This data flow is used within the Manage Maintenance and Construction function and consists of processed data concerning the condition of the infrastructure as reported from sensor equipment on the roadside and on-board maintenance and construction vehicles. This infrastructure includes bridges, culverts, signs, and other roadway infrastructure. By monitoring this data flow, the health of the infrastructure can be assessed and maintenance activities scheduled if deemed necessary. It consists of the following data item which is defined in its own DDE:

processed_infrastructure_sensor_data

env_probe_data_from_vehicle

This data flow provides outputs from sensors onboard a vehicle used to determine environmental conditions, including a unique vehicle identifier, measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, ALB status, and other collected vehicle system status and sensor information that can be used to estimate environmental conditions. Both current data and snapshots of recent events (e.g., traction control or anti-lock brake system activations) may be reported. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity +

list_size +
list_size{sensor_identity
+ vehicle_env_sensor_output}

env_probe_data_from_vehicles

This data flow contains environmental conditions (e.g. temperature and precipitation) that have been aggregated from individual vehicles acting as probes. The probe information may be provided in terms of the location of the road segments from which it was collected. It consists of the following data items each of which is defined in its own DDE:

route_segment_total_number{route_segment_identity
+ env_probe_data}

env_probe_info

This data flow contains environmental conditions (e.g. temperature and precipitation) that have been aggregated from individual vehicles acting as probes. The probe information may be provided based upon the road segment from which it was collected. The probe information can be collected from the vehicles of the traveling public via an information service provider or environmental probe field equipment. It consists of the following data items each of which is defined in its own DDE:

env_probe_info_from_isp_for_maint
+ vehicle_env_probe_data_for_maint
+ vehicle_env_probe_status_for_maint

env_probe_info_from_isp_for_maint

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Maintenance and Construction function and contains aggregated environmental conditions data (measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, ALB status, and other collected vehicle system status and sensor information) collected from ITS-equipped personal vehicles. The data flow consists of the following item which is defined in its own DDE:

vehicle_env_probe_data_aggregation

env_sensor_control_by_auto_treat_device

This data flow provides control commands for an environmental sensor being controlled by automated treatment devices at the roadway. The data flow consists of the following data item which is defined in its own DDE:

env_sensor_control_by_roadway_treatment_device

env_sensor_control_by_operator

This data flow provides operator initiated control commands for an environmental sensor, which is identified by its station id and sensor identity.

station_id
+ sensor_identity
+ environmental_sensor_control

env_sensor_control_by_roadway_treatment_device

This data flow provides control commands for an environmental sensor being controlled by automated treatment devices at the roadway.

env_sensor_control_by_traffic_operator

This data flow provides operator initiated control commands for an environmental sensor. The sensor may be within or outside the local jurisdiction, assuming permission for remote control has been granted. It consists of the following data items each of which is defined in its own DDE:

env_sensor_control_to_roadway
+ env_sensor_control_to_other_center

env_sensor_control_from_other_center

This data flow provides control commands for local environmental sensors at the roadway from a traffic management center outside the local jurisdiction, assuming permission for remote control has been granted. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id + sensor_identity + environmental_sensor_control}

env_sensor_control_to_other_center

This data flow provides local operator initiated control commands for an environmental sensor outside the local jurisdiction, assuming permission for remote control has been granted. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id + sensor_identity + environmental_sensor_control}

env_sensor_control_to_roadway

This data flow provides control commands for environmental sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id + sensor_identity + environmental_sensor_control}

env_sensor_data_archive_catalog

This data flow is used to provide the description of the data contained in the collection of environmental sensor data that has been stored and made available for the Manage Archived Data function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g. time range of entries, number of entries; or sample data products.

env_sensor_data_for_archive

This data flow is sent by the Weather Service terminator and contains quality checked environmental sensor data that may be of interest to archive data user systems along with the meta data that is necessary to describe the imported data to the Manage Archived Data function. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes
+ environment_sensor_quality_checks}

env_sensor_data_for_auto_treat_device

This data flow provides outputs from an individual environment sensor at the roadway. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ environment_sensor_output

env_sensor_data_for_isp_from_weather_svc

This data flow provides outputs from a set of quality checked environment sensors. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes
+ environment_sensor_quality_checks}

env_sensor_data_for_m_and_c_speed_monitoring

This data flow provides a set of outputs from an individual environment sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output}

env_sensor_data_for_speed_enforcement

This data flow provides a set of outputs from an individual environment sensors at the roadway for use in determining whether vehicles are traveling in excess of safe operating conditions given the current environmental conditions. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output}

env_sensor_data_for_traffic_speed_monitoring

This data flow provides a set of outputs from an individual environment sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output}

env_sensor_data_for_variable_speed_limits

This data flow provides a set of outputs from environment sensors at the roadway for use in determining whether vehicles are traveling in excess of safe operating conditions given the current environmental conditions. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{station_id
  + sensor_identity
  + environment_sensor_output}

env_sensor_equip_status_for_m_and_c_from_center

This data flow provides the operational status (state of the device, configuration, and fault data) of a set of environmental sensors to the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is

defined in its own DDE:

list_size{station_id
+ sensor_identity
+ sensor_device_status}

env_sensor_status_for_traffic_operator

This data flow provides the operational status (state of the device, configuration, and fault data) of environmental sensors at the roadside. The sensors may be within or outside the local jurisdiction. If the latter, the status is provided by a traffic management center outside the local jurisdiction whose sensors are remotely controlled by the local center. Permission for remote control of the sensor is assumed to have been granted. It consists of the following data items each of which is defined in its own DDE:

environmental_sensor_status +
env_sensor_status_from_other_center

env_sensor_status_from_other_center

This data flow provides the operational status (state of the device, configuration, and fault data) of environmental sensors at the roadside located outside the local jurisduction. The status is provided by a traffic management center outside the local jurisdiction whose sensors are remotely controlled by the local center. Permission for remote control of the sensor is assumed to have been granted. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_device_status}

env_sensor_status_to_other_center

This data flow provides the operational status (state of the device, configuration, and fault data) of a local environmental sensor at the roadside. The status is provided to a traffic management center outside the local jurisdiction that is remotely controlling the local sensor. Permission for remote control of the sensor is assumed to have been granted. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_device_status}

environment_sensor_attributes

This data flow is used to provide meta data associated with environment sensor data. Items of meta data may include attributes that describe the source of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in ISO 14817. This data flow consists of the following items each of which is defined in its own DDE:

data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

environment_sensor_data

This data flow contains a set of outputs from individual environment sensors. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ sensor_identity
+ environment_sensor_output}

environment_sensor_data_for_maint

This data flow contains a collection of all environment sensor data that is collected by the Manage Traffic function. It consists of

the following data item which is defined in its own DDE:

environment_sensor_data

environment_sensor_data_for_traffic
This data flow contains a collection of all environment sensor data that is collected by the Manage Maintenance and Construction function. It consists of the following data items each of which is defined in its own DDE:

environment_sensor_data

environment_sensor_output
This data flow contains the raw data collected from a single sensor. This data flow could include data pertaining to wind, temperature, humidity, precipitation, radiation (sun), visibility, and pavement sensor information.

environment_sensor_output_data
This data flow is used within the Manage Traffic function and contains information obtained from data analyzed by environmental sensors. It is sent to the process traffic data store for current and long term data. This data flow consists of the following item which is defined in its own DDE:

environment_sensor_data

environment_sensor_quality_checks
This data flow represents the output of a series of quality checks against the environmental sensor data.

environmental_data_for_incidents
This data flow from the Process Traffic Data function contains information collected by environmental sensors that is to be used to identify and classify possible incidents. It consists of the following item which is defined in its own DDE:

environment_sensor_data

environmental_data_for_signage
This data flow from the Process Traffic Data function contains information collected by environmental sensors that can be used to inform travelers about conditions in the area. It consists of the following item which is defined in its own DDE:

environment_sensor_data

environmental_data_for_vehicle_sensors
This data flow provides local environmental conditions to roadside sensors. This data may include precipitation, fog, or temperature data to assist cooperative vehicle safety systems.

environmental_sensor_control
This data flow provides control commands for an environmental sensor at the roadway.

environmental_sensor_control_for_mcv
This data flow provides control commands for an environmental sensor located on a maintenance and construction vehicle.

environmental_sensor_control_for_roadway
This data flow provides control commands for an environmental sensor at the roadway. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ environmental_sensor_control

environmental_sensor_control_for_roadway_sensors
This data flow provides control commands for environmental sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environmental_sensor_control}

environmental_sensor_control_on_board
This data flow provides control commands for an environmental sensor located on a maintenance and construction vehicle.

environmental_sensor_data
This data flow contains the environmental sensor data that has been collected from a wide array of sources. These include roadside environmental sensors and environmental sensors on maintenance and construction vehicles, as well as environmental probe data. This data flow consists of the following data items each of which is defined in its own DDE:

environmental_sensor_data_from_mcv
+ environmental_sensor_status_from_mcv
+ environmental_sensor_data_from_roadway_sensors
+ environmental_sensor_status_from_roadway_sensors

+ environmental_sensor_data_from_traffic_management
+ fomcm-env_sensor_data
+ fws-env_sensor_data_for_maint
+ fws-maintenance_environment_sensor_data_status
+ fstws-env_sensor_data_for_maint

environmental_sensor_data_archive_input

This data flow is used within the Manage Traffic function to collect environmental sensor data from the roadside to send to the archive data function. It consists of the following data item which is defined in its own DDE:

environment_sensor_data

environmental_sensor_data_attributes

This data flow is used to provide meta data included with sensor data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

environmental_sensor_data_for_roadway

This data flow provides outputs from an individual environment sensor on a maintenance and construction vehicle. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ environment_sensor_output

environmental_sensor_data_from_mcv

This data flow contains environmental sensor data that is collected on-board a maintenance and construction vehicle. The sensor data may come from sensors on-board the vehicle or from sensors at the roadside that have been monitored by the vehicle. It consists of the following data items each of which is defined in its own DDE:

environmental_sensor_data_from_mcv_sensors
+ environmental_sensor_data_from_roadway

environmental_sensor_data_from_mcv_sensors

This data flow provides outputs from an individual environment sensor on a maintenance and construction vehicle. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ environment_sensor_output

environmental_sensor_data_from_roadway

This data flow provides outputs from an individual environment sensor at the roadway. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ environment_sensor_output

environmental_sensor_data_from_roadway_sensors

This data flow provides a set of environmental sensor data that is collected at the roadway. The sensor data may come from sensors on-board a maintenance and construction vehicle or from sensors at the roadside. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output}

environmental_sensor_data_from_traffic_management

This data flow provides outputs from a set of environment sensors that are monitored by a traffic management function. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output}

environmental_sensor_data_on_board

This data flow provides outputs from an individual environment sensor on a maintenance and construction vehicle that are sent to the field personnel interface. It consists of the following data items each of which is defined in its own DDE:

sensor_identity
+ environment_sensor_output

environmental_sensor_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of an environmental sensor at the roadside for the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

environmental_sensor_status

This data flow provides the operational status (state of the device, configuration, and fault data) of an environmental sensor at the roadside for the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

environmental_sensor_status_for_archive_manager

This data flow is used to collect operational status (state of the device, configuration, and fault data) of environmental sensors from the roadside. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ sensor_identity
+ sensor_device_status}

environmental_sensor_status_from_mcv

This data flow provides the operational status (state of the device, configuration, and fault data) of an environmental sensor that is obtained on-board a maintenance and construction vehicle. The sensor status may come from sensors on-board the vehicle or from sensors at the roadside that have been monitored by the vehicle. It consists of the following data items each of which is defined in its own DDE:

environmental_sensor_status_from_mcv_sensors
+ environmental_sensor_status_from_roadway

environmental_sensor_status_from_mcv_sensors

This data flow provides the operational status (state of the device, configuration, and fault data) of an environmental sensor located on a maintenance and construction vehicle. By monitoring this data flow, the receiving process can monitor the health and current status of on-board equipment. It consists of the following data items each of which is defined in its own DDE:

vehicle_id_for_mcv
+ sensor_identity
+ sensor_device_status

environmental_sensor_status_from_roadway

This data flow provides the operational status (state of the device, configuration, and fault data) of an environmental sensor at the roadside. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which are defined in its own DDE:

station_id

+ sensor_identity
+ sensor_device_status

environmental_sensor_status_from_roadway_sensors
This data flow provides the operational status (state of the device, configuration, and fault data) of an environmental sensor at the roadside. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

environmental_sensor_status_on_board
This data flow provides the operational status (state of the device, configuration, and fault data) of an environmental sensor onboard a vehicle. The fault will have been found by a process that is local to the sensor itself. This data flow is sent to the field personnel interface. It consists of the following data items each of which is defined in its own DDE:

vehicle_id_for_mcv
+ sensor_identity
+ sensor_device_status

equip_device_status
This data flow is used to collect the operational status of a sensor (e.g., traffic flow, speed, wind, chemical, temperature, precipitation) or other field device (e.g., signals, ramp meter controllers, CCTVs, vehicle traffic and environmental probe field equipment, in-vehicle signing equipment, automated roadway treatment systems, barrier, and safeguard systems), including the state of the sensor or device, configuration, and fault data. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment.

equip_identity
This data flow contains an identifier of the type of field equipment, including sensors (e.g., traffic flow, speed, wind, chemical, temperature, precipitation) and devices (e.g., signals, ramp meter controllers, CCTVs, vehicle traffic and environmental probe field equipment, in-vehicle signing equipment, automated roadway treatment systems, barrier, and safeguard systems).

equipment_availability
This data flow contains the types, quantities, and status of maintenance and construction equipment available at the storage facility and in the asset inventory. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{m_and_c_equipment_type
+ m_and_c_equipment_quantity
+ m_and_c_equipment_status
+ date
+ time}

equipment_status
This data flow describes the status of the equipment at the time of collection.

error_handling
This data flow identifies the error detection or correction algorithms applied to the data to better facilitate reconstruction of the data later.

evacuation_area
This data flow contains the geographic area that is to be evacuated.

evacuation_control_response_from_other_traffic_management
This data flow is sent to Traffic Management from Other Traffic Management. It contains a response from another traffic management center on a control strategy that has been implemented to support a local evacuation effort. The data flow consists of the following data items each of which is defined in its own DDE:

traffic_control_response

evacuation_data_for_archive
This flow contains the evacuation plans that will be used and sends them to the archive of data. The data flow consists of the following data items which are defined in their own DDE:

emergency_evacuation_plan

evacuation_data_for_communications
This flow contains information regarding evacuation that will be communicated from emergency management to other operation centers and ISPs. It is intended to carry information that is relevant for public distribution. The data flow consists of the following data items which are defined in their own DDE:

evacuation_rail_schedule
+ evacuation_transit_schedule
+ evacuation_transit_routes

+ evacuation_transit_fares
+ shelter_information
+ evacuation_area
+ evacuation_schedule

evacuation_data_for_isp
This flow contains information regarding evacuation that will be communicated from emergency management to a traveler information and service provider. It is intended to carry information that is relevant for public distribution. The data flow consists of the following data items which are defined in their own DDE:

evacuation_rail_schedule
+ evacuation_transit_schedule
+ evacuation_transit_routes
+ evacuation_transit_fares
+ shelter_information
+ evacuation_area
+ evacuation_schedule

evacuation_information_for_m_and_c
This flow contains information regarding the evacuation for maintenance and construction. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule

evacuation_information_for_traffic_management
This flow contains information regarding the evacuation for traffic management. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule

evacuation_information_for_transit_management
This flow contains information regarding the evacuation for transit management. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule

evacuation_m_and_c_available_resources
This data flow contains the resources maintenance and construction management has available for use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

m_and_c_resources

evacuation_m_and_c_work_plan
This data flow contains the modified work plan that might be used by maintenance and construction during potential evacuation situations. It contains a list of current work zones and other areas in the transportation system in which work could stop in order to support the evacuation. It consists of the following data item which is defined in its own DDE:

m_and_c_work_plans

evacuation_oem_available_resources
This data flow contains the available resources for evacuation from another emergency management center. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_vehicle_availability

evacuation_plan_activation
This data flow is sent upon receipt of evacuation information from emergency management in order to activate the predefined evacuation response plan. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule
+ evacuation_signal_timing_plans

evacuation_plan_coordination_from_m_and_c
This data flow is used is used to coordinate evacuation plans with maintenance and construction management. It contains a resulting evacuation plan that maintenance can use based on modifications to the preplanned evacuation plan and information available about the current network conditions. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_evacuation_plan

evacuation_plan_coordination_from_traffic

This data flow is used is used to coordinate evacuation plans with traffic management. It contains a resulting evacuation plan that traffic management can use based on modifications to the preplanned evacuation plan and information available about the current network conditions. The data flow consists of the following data item which is defined in its own DDE:

traffic_evacuation_plan

evacuation_plan_coordination_from_transit

This data flow is used is used to coordinate evacuation plans with transit management. It contains a resulting evacuation plan that transit management can use based on modifications to the preplanned evacuation plan and information available about the current network conditions. The data flow consists of the following data item which is defined in its own DDE:

transit_evacuation_plan

evacuation_plan_coordination_to_m_and_c

This data flow is used to coordinate evacuation plans with maintenance and construction. It contains information regarding the nature of the disaster or incident that has required an evacuation, and the preplanned evacuation plan for maintenance. Given this information, maintenance can than update and provide a plan that it will use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

emergency_evacuation_data
+ m_and_c_preplanned_evacuation_plan
+ evacuation_status_report
+ evacuation_transportation_system_status

evacuation_plan_coordination_to_traffic

This data flow is used to coordinate evacuation plans with traffic management. It contains information regarding the nature of the disaster or incident that has required an evacuation, and the preplanned evacuation plan for traffic. Given this information, traffic can than update and provide a plan that it will use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

emergency_evacuation_data
+ traffic_preplanned_evacuation_plan
+ evacuation_status_report
+ evacuation_transportation_system_status

evacuation_plan_coordination_to_transit

This data flow is used to coordinate evacuation plans with transit management. It contains information regarding the nature of the disaster or incident that has required an evacuation, and the preplanned evacuation plan for transit. Given this information, transit can than update and provide a plan that it will use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

emergency_evacuation_data
+ transit_preplanned_evacuation_plan
+ evacuation_status_report
+ evacuation_transportation_system_status

evacuation_plans

This data store is used within the emergency management function for evacuation coordination. It contains preplanned evacuation plans. In the event that an evacuation is ordered, this data is used in generating evacuation routes, plans, etc. A plan stored here, is selected that best fits the current evacuation order. It is then updated by coordinating with transportation agencies, jurisdictions, etc. to create an evacuation plan for implementation. The data store consists of the following data item which is defined in its own DDE:

preplanned_evacuation_plan

evacuation_rail_available_resources

This data flow contains the available resources for evacuation from rail operations. The data flow consists of the following data items each of which is defined in its own DDE:

rail_available_resources

evacuation_rail_schedule

This data flow contains the available schedule for evacuation from rail operations.

evacuation_schedule

This data flow contains the evacuation schedule.

evacuation_signal_timing_plans

This data flow is used within the Manage Traffic function and contains the signal timing plan/strategy which has been selected for implementation at traffic signals and lane use control devices in the geographic and jurisdictional area(s) served by the function during an evacuation.

evacuation_status_for_disaster_response

This flow contains the evacuation plans and status of the evacuation. It is used by disaster response to monitor the evacuation

status and assists in improving the disaster response and recovery plan. The data flow consists of the following data items which are defined in their own DDE:

emergency_evacuation_plan
+ evacuation_status_report

evacuation_status_report
This flow contains the set of the evacuation status reports from traffic management, transit management, maintenance and construction, other emergency management, etc. This data is forwarded so that the evacuation plan can be improved as needed. The data flow consists of the following data items which are defined in their own DDE:

transit_evacuation_status
+ traffic_evacuation_status
+ foem-evacuation_status

evacuation_toll_change_request
This flow represents a request to initiate a change in tolls to support an evacuation.

evacuation_toll_change_response
This flow represents the response that a change in tolls had or has not been accomplished by the toll administration to support an evacuation.

evacuation_traffic_available_resources
This data flow contains the resources traffic management has available for use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

traffic_resources_available

evacuation_traffic_control_request_for_other_traffic_management
This data flow is sent from Traffic Management to Other Traffic Management. It contains a request for the other traffic management center to implement a control strategy to support the local evacuation effort. The data flow consists of the following data items which are defined in their own DDE:

traffic_control_request

evacuation_traffic_control_request_from_other_traffic_management
This data flow is sent to Traffic Management from Other Traffic Management. It contains a request for traffic management center to implement a control strategy to support a non-local evacuation effort. The data flow consists of the following data items which are defined in their own DDE:

traffic_control_request

evacuation_traffic_control_response_for_other_traffic_management
This data flow is sent from Traffic Management to Other Traffic Management. It contains a response to other traffic management center on a control strategy that has been implemented to support a non-local evacuation effort. The data flow consists of the following data items each of which is defined in its own DDE:

traffic_control_response

evacuation_traffic_data_for_other_traffic_management
This data flow is sent from Traffic Management to Other Traffic Management. It contains information regarding a current evacuation and a request for the other traffic management center to implement a control strategy to support the local evacuation effort. It also contains a response to a request from the other traffic management center for supporting a non-local evacuation effort. It consists of the following data items each of which is defined in its own DDE:

evacuation_traffic_information_for_other_traffic_management
+ evacuation_traffic_control_request_for_other_traffic_management
+ evacuation_traffic_control_response_for_other_traffic_management

evacuation_traffic_data_from_other_traffic_management
This data flow is sent to Traffic Management from Other Traffic Management. It contains information regarding a current evacuation and a request for the local traffic management center to implement a control strategy to support a non-local evacuation effort. It also contains a response to a request from the local traffic management center for supporting a local evacuation effort. It consists of the following data items each of which is defined in its own DDE:

evacuation_traffic_information_from_other_traffic_management
+ evacuation_traffic_control_request_from_other_traffic_management
+ evacuation_control_response_from_other_traffic_management

evacuation_traffic_information_for_other_traffic_management
This data flow is sent from Traffic Management to Other Traffic Management. It contains information regarding a current local evacuation. It consists of the following data items each of which is defined in its own DDE:

emergency_evacuation_data

+ predefined_traffic_evacuation_plan

evacuation_traffic_information_from_other_traffic_management
This data flow is sent from Other Traffic Management to Traffic Management. It contains information regarding a current non-local evacuation. It consists of the following data items each of which is defined in its own DDE:

emergency_evacuation_data
+ predefined_traffic_evacuation_plan

evacuation_transit_available_resources
This data flow contains the resources transit management has available for use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

transit_resources_available

evacuation_transit_fares
This data flow contains the fares transit management has available for use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

transit_fare

evacuation_transit_routes
This data flow contains the routes transit management has available for use to support the evacuation. It consists of the following data items each of which is defined in its own DDE:

transit_route

evacuation_transit_schedule
This data flow contains the schedule transit management has available for use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

transit_schedule_data

evacuation_transit_schedule_information_for_traffic
This data flow contains information on transit service or schedule changes that have been put into effect in response to evacuations. The data flow consists of the following data items which are defined in their own DDE:

evacuation_transit_schedule

evacuation_transportation_system_status
This data flow consists of a report of the current status of the transportation system. The data contained in the flow is used to assist in coordinating evacuation activities. The data flow consists of the following data items each of which is defined in its own DDE:

rail_system_status_for_evacuation
+ m_and_c_status_assessment_for_evacuation
+ network_status_from_traffic_for_evacuation

evacuation_transportation_system_status_for_isp
This data flow consists of a report of the current status of the transportation system. This data is reported to information service providers as an ongoing status during an evacuation. The data flow consists of the following data item which is defined in its own DDE:

evacuation_transportation_system_status

evacuation_transportation_system_status_for_traffic
This data flow consists of a report of the current status of the transportation system. This data is reported to traffic management as an ongoing status during an evacuation. The data flow consists of the following data item which is defined in its own DDE:

evacuation_transportation_system_status

evacuation_transportation_system_status_for_transit
This data flow consists of a report of the current status of the transportation system. This data is reported to transit management as an ongoing status during an evacuation. The data flow consists of the following data item which is defined in its own DDE:

evacuation_transportation_system_status

event_alert
This data flow contains traveler alerts that report regionally relevant special events, and may include the event type, start/end times, event attendance, expected traffic impact), and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions including the traveler's location, search radius, drive route, or timeframe, as well as configurable alert thresholds (e.g., severity of the alert).

event_attendance_expected
This data flow is used within the Manage Traffic function to define the number of people expected to attend an event that has

been registered as a possible incident by an Event Promoter.

event_duration
This data flow is used within the Manage Traffic function to define the duration of an event that has been registered as a possible incident by an Event Promoter.

event_information_for_alerts
This data flow contains traveler alerts that report regionally relevant special events, and may include the event type, start/end times, event attendance, expected traffic impact, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions.

event_information_for_broadcast
This data flow is used within the Provide Driver and Traveler Services function to provide event information to broadcast traveler information applications. It consists of the following items each of which is defined in its own DDE:

event_name
+ event_start_time
+ event_duration
+ event_location
+ event_attendance_expected

event_information_for_centers
This data flow is used within the Provide Driver and Traveler Services function to provide event information for transmission to other operational centers. It consists of the following items each of which is defined in its own DDE:

event_name
+ event_start_time
+ event_duration
+ event_location
+ event_attendance_expected

event_information_for_interactive
This data flow is used within the Provide Driver and Traveler Services function to provide event information, processed for traveler consumption, to interactive traveler information applications. It consists of the following items each of which is defined in its own DDE:

event_name
+ event_start_time
+ event_duration
+ event_location
+ event_attendance_expected

event_information_for_travelers
This data flow contains information that might be of interest to travelers planning trips, particularly information on special events.

event_information_request
This data flow is sent by the Provide Driver and Traveler Services function to request updated information about events.

event_information_request_for_alerts
This data flow is used to request specific special event information based on traveler alert subscriptions.

event_information_request_from_interactive
This data flow is sent by the Provide Driver and Traveler Services function to request updated information about events for use by interactive traveler information applications. It consists of the following item which is defined in its own DDE:

event_information_request

event_location
This data flow is used within the Manage Traffic function to define the location of an event that has been registered as a possible incident by an Event Promoter.

location_identity

event_name
This data flow is used within the Manage Traffic function to define the name of an event that has been registered as a possible incident by an Event Promoter.

event_notice
This data flow is used by the detect Roadway Events process to notify the Execute Local Control Strategy process that an event has occurred within the HRI and an action is required.

event_start_time
This data flow is used within the Manage Traffic function to define the start time of an event that has been registered as a possible incident by an Event Promoter.

existing_sensor_static_data

This data flow is used within the Manage Traffic function. It contains a copy of the current contents of the store of static data used in the processing of data received from traffic sensors. It consists of the following data item which is defined in its own DDE:

static_data_for_sensor_processing

F

f_other_ic_collision_data

This data flow is received from another roadside device (another intersection controller) and contains imminent crash warnings and control information for a roadside indicator. It is used for coordination between peer roadside indicators or for information transfer between devices functioning in a hierarchical arrangement.

f_other_rw_data_for_intersection

This data flow is sent from a traffic device on the roadside and contains indicator control data, sensor status, fault data, environmental sensor data, and vehicle detection data.

f_other_rw_data_for_signage

This data flow is used within the Manage Traffic function to provide data from other roadway devices (controllers, sensors) to be used to generate a message for in-vehicle signage. It consists of the following data items each of which is defined in its own DDE:

f_other_rw_speed_warning_to_signage
+ f_other_rw_individual_vehicle_speed_to_signage
+ f_other_rw_traffic_metering_data_to_signage
+ f_other_rw_variable_speed_to_signage
+ local_environmental_data_for_signage
+ pedestrian_data_for_signage
+ vehicle_emissions_message
+ f_other_rw_roadway_warning_to_signage

f_other_rw_dms_auto_treat_data_from_roadway

This data flow from an automated road treatment system causes a roadway information device such as a dynamic message sign (DMS) to display an indication of the status of automated road treatment (e.g. on-going, just completed, about to begin). The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text+ lane_dms_controls}

f_other_rw_dms_barrier_activated_from_roadway

This data flow from an automated barrier system causes a roadway information device such as a dynamic message sign (DMS) to display an indication of the status of the barrier system (e.g. open, closed). The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text+ lane_dms_controls}

f_other_rw_dms_safeguard_activated_from_roadway

This data flow from an automated safeguard system (e.g. blast shields, exhaust fans) causes a roadway information device such as a dynamic message sign (DMS) to display an indication of the status of the safeguard system (e.g. ongoing, just completed, about to begin). The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}

f_other_rw_env_sensor_control_by_auto_treat_device

This data flow provides control commands for a roadside environmental sensor being controlled by automated treatment devices at the roadway. The data flow consists of the following data item which is defined in its own DDE:

env_sensor_control_by_roadway_treatment_device

f_other_rw_env_sensor_data_for_auto_treat_device

This data flow provides data from an individual environmental sensor into an automated treatment device at the roadway. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ environment_sensor_output

f_other_rw_env_sensor_data_to_dms
This data flow contains information from the output of an environment sensor for direct display on a roadway information device (e.g. a dynamic message sign (DMS)). It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{station_id + sensor_identity + environment_sensor_output}

f_other_rw_fc_control_to_fc
This data flow is received from another highway roadside device (e.g., another ramp meter controller) and contains control information for a highway roadside indicator. It can contain the actual data from which instructions to the driver and traveler can be produced by indicators at the roadside on highways in the geographic and/or jurisdictional area(s) served by the function. It is used for sharing of control between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

indicator_crossing_control_data_for_highways
+ indicator_ramp_control_data

f_other_rw_fc_control_to_traffic_sensor
This data flow is sent from a highway roadside indicator (e.g., ramp meter controller) to a traffic sensor device on the roadside and contains sensor control commands.

f_other_rw_fc_status_to_fc
This data flow is sent from other highway roadside devices (e.g. another ramp meter controller) and contains operational status (state of the device, configuration, and fault data) for a highway roadside indicator. It is used for coordination between peer roadside indicators or for information transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ device_identity
+ roadside_device_status
+ indicator_response_state}

f_other_rw_fc_to_fc
This data flow is received from other highway roadside devices (e.g. another ramp meter controller) and contains status, fault indications, and control information for a highway roadside indicator. It is used for coordination between peer roadside indicators or for information transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

f_other_rw_fc_status_to_fc
+ f_other_rw_fc_control_to_fc

f_other_rw_ic_control_to_ic
This data flow is received from another roadside device (another intersection controller) and contains control information for a roadside indicator. It can contain the actual data from which instructions to the driver and traveler can be produced by indicators at the roadside on roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It is used for sharing of control between devices functioning in a hierarchical arrangement. It may also be used to exchange information between a Signal System Master (SSM) and Signal System Local (SSL) equipment. It consists of the following data items each of which is defined in its own DDE:

indicator_crossing_control_data_for_roads
+ indicator_intersection_control_data
+ indicator_pedestrian_control_data

f_other_rw_ic_control_to_traffic_sensor
This data flow is sent from a roadside indicator (e.g., intersection controller) to a traffic sensor device on the roadside and contains sensor control commands.

f_other_rw_ic_fault_to_ic
This data flow is sent from another roadside device and contains fault data for a traffic signal controller. It is used for coordination between peer roadside devices or for information transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ device_identity
+ roadside_device_fault}

f_other_rw_ic_status_to_ic
This data flow is sent from other roadside devices (another intersection controller) and contains operational status (state of the device, configuration) for a roadside indicator. It is used for coordination between peer roadside indicators or for information

transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ device_identity
+ roadside_device_status
+ indicator_response_state}

f_other_rw_ic_to_ic

This data flow is received from another roadside device (another intersection controller) and contains status, fault, and control information for a roadside indicator. It is used for coordination between peer roadside indicators or for information transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

f_other_rw_ic_status_to_ic
+ f_other_rw_ic_control_to_ic
+ f_other_rw_ic_fault_to_ic

f_other_rw_individual_vehicle_speed_to_dms

This data flow contains an indication of an individual vehicle's speed which can be displayed on a dynamic message sign (DMS). This data flow is sent from one roadside device (the speed sensor) to another roadside device (the DMS).

f_other_rw_individual_vehicle_speed_to_signage

This data flow contains an indication of an individual vehicle's speed which can be sent using in-vehicle signage. This data flow is sent from one roadside device (the speed sensor) to another roadside device (the in-vehicle signage transmitter).

f_other_rw_pedestrian_sensor_data

This data flow is used within the Manage Traffic function to contain the pedestrian call data coming from other roadway devices. It consists of the following data item which is defined in its own DDE:

pedestrian_demand

f_other_rw_road_user_protection_warning

This data flow contains road user protection warnings that have been received from another roadside device.

f_other_rw_roadway_info_data

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by roadway information devices such as dynamic message signs (DMS). This data flow represents the roadway information displays created by other roadway sensors (e.g. environmental or speed) or devices (e.g. automated road treatment, barrier systems, safeguard systems). It consists of data the following data items each of which is composed of its own DDE:

f_other_rw_dms_auto_treat_data_from_roadway
+ f_other_rw_dms_barrier_activated_from_roadway
+ f_other_rw_dms_safeguard_activated_from_roadway
+ f_other_rw_env_sensor_data_to_dms
+ f_other_rw_speed_warning_to_dms
+ f_other_rw_individual_vehicle_speed_to_dms
+ f_other_rw_traffic_metering_to_dms
+ f_other_rw_variable_speed_to_dms
+ vehicle_emissions_message
+ f_other_rw_roadway_warning_to_dms

f_other_rw_roadway_warning_to_dms

This data flow contains warnings for drivers concerning potential roadway hazards, e.g., roadway weather conditions, road surface conditions, traffic congestion and queues, obstacles in the roadway. The data flow is sent from one roadside device (the detector) to another roadside device (the sign).

f_other_rw_roadway_warning_to_signage

This data flow contains warnings for drivers concerning potential roadway hazards, e.g., roadway weather conditions, road surface conditions, traffic congestion and queues, obstacles in the roadway. The data flow is sent from one roadside device (the detector) to another roadside device (the signage transmitter).

f_other_rw_sensor_to_fc

This data flow is sent from a traffic sensor device on the roadside to a highway roadside indicator and contains sensor status, fault data, and vehicle detection data. It consists of the following data items each of which is defined in its own DDE:

f_other_rw_traffic_sensor_data_to_fc
+ f_other_rw_traffic_sensor_status_to_fc

f_other_rw_sensor_to_ic

This data flow is sent from a traffic sensor device on the roadside to a roadside indicator and contains sensor status, fault data, and vehicle detection data. It consists of the following data items each of which is defined in its own DDE:

f_other_rw_traffic_sensor_data_to_ic

+ f_other_rw_traffic_sensor_status_to_ic

f_other_rw_speed_warning_to_dms
This data flow contains a speed warning or safe speed advisory that can be displayed to a driver via a dynamic message sign (DMS). The message may indicate that the vehicle is exceeding the speed limit, how many miles per hour over the speed limit was measured, or a safe speed advisory based on environmental conditions and vehicle characteristics. The data flow is sent from one roadside device (the speed sensor) to another roadside device (the dynamic message sign).

f_other_rw_speed_warning_to_signage
This data flow contains a speed warning or safe speed advisory that can be sent to a driver via in-vehicle signage. The message may indicate that the vehicle is exceeding the speed limit, how many miles per hour over the speed limit was measured, or a safe speed advisory based on environmental conditions and vehicle characteristics. The data flow is sent from one roadside device (the speed sensor) to another roadside device (the in-vehicle signage transmitter).

f_other_rw_traffic_metering_data_to_signage
This data flow contains information to be distributed to drivers approaching a traffic meter (e.g., ramp meter), such as advance warning of the meter, its operational status (whether it is currently on or not, how many cars per green are allowed, etc.), lane usage at the meter (including a bypass lane for HOVs) and existing queue at the meter.The data flow is sent from one roadside device (the metering controller) to another roadside device (the signage transmitter).

f_other_rw_traffic_metering_to_dms
This data flow from a traffic metering or ramp control system causes a roadway information device such as a dynamic message sign (DMS) to display instructions to the driver about lane usage or entry lane usage. The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data item which is defined in its own DDE:

dms_traffic_metering_data

f_other_rw_traffic_sensor_data_to_fc
This data flow is sent from a traffic sensor device on the roadside to a highway roadside indicator and contains vehicle detection data; i.e., data that provides information about vehicles moving on the highway network. It consists of the following data item which is defined in its own DDE:

vehicle_detection_data

f_other_rw_traffic_sensor_data_to_ic
This data flow is sent from a traffic sensor device on the roadside to a roadside indicator (intersection controller) and contains vehicle detection data; i.e., data that provides information about vehicles moving on the road network. It consists of the following data item which is defined in its own DDE:

vehicle_detection_data

f_other_rw_traffic_sensor_status_to_fc
This data flow is sent from a traffic sensor device on the roadside to a highway roadside device (e.g. ramp meter controller) and contains operational status (state of the device, configuration, and fault data) for that sensor. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

f_other_rw_traffic_sensor_status_to_ic
This data flow is sent from a traffic sensor device on the roadside by a roadside indicator and contains operational status (state of the device, configuration, and fault data) for that sensor. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

f_other_rw_variable_speed_limit_data
This data flow from an Other Roadway System provides the speed limit information for use in device control. This is the safe speed for vehicles based on current traffic conditions, environmental conditions, and local policy, and safe speed thresholds.

f_other_rw_variable_speed_to_dms
This data flow contains information to be distributed to drivers approaching an area with a variable speed limit and provides its operational status (whether it is currently on or not) and the current speed limit based on traffic and environmental conditions.

f_other_rw_variable_speed_to_signage
This data flow contains information to be distributed to drivers using in-vehicle signage approaching an area with a variable speed limit. It provides its operational status (whether it is currently on or not) and the current speed limit based on traffic and environmental conditions.

f_other_rw_work_zone_intrusion_detection
This data flow is sent to an intrusion alert device and contains a time stamped indication from an intrusion detection sensor that an

intrusion into the perimeter of the work zone has occurred. It consists of the following data item which is defined in its own DDE:

work_zone_intrusion_detection

faas-alerts_and_advisories_for_cvas
This data flow is sent from the Alerting and Advisory System terminator to provide information to the Administer Commercial Vehicles function concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency. This could include alerts or advisory information provided by the Emergency Alert System. This data could include data to help the Administer Commercial Vehicles function appropriately plan activities and prepare for a response to a disaster or emergency situation.

faas-alerts_and_advisories_for_cvo
This data flow is sent from the Alerting and Advisory System terminator to provide information to the manage commercial vehicle fleet operations function concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency. This could include alerts or advisory information provided by the Emergency Alert System. This data could include data to help the Manage Commercial Vehicles Fleet Operations function appropriately plan activities and prepare for a response to a disaster or emergency situation.

faas-alerts_and_advisories_for_freight
This data flow is sent from the Alerting and Advisory System terminator to provide information to the manage commercial vehicle function concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency. This could include alerts or advisory information provided by the Emergency Alert System. This data could include data to help the Manage Commercial Vehicles function appropriately plan activities and prepare for a response to a disaster or emergency situation.

faas-alerts_and_advisories_for_inspection
This data flow is sent from the Alerting and Advisory System terminator to provide information to the Commercial Vehicle Roadside Safety function concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency. This could include alerts or advisory information provided by the Emergency Alert System. This data could include data to help the Commercial Vehicle Roadside Safety function appropriately plan activities and prepare for a response to a disaster or emergency situation.

faas-alerts_and_advisories_for_maint
This data flow is sent from the Alerting and Advisory System terminator to provide information to the Manage Maintenance and Construction function concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency. This could include alerts or advisory information provided by the Emergency Alert System. This data could include data to help the Manage M&C function appropriately plan activities and prepare for a response to a disaster or emergency situation.

faas-alerts_and_advisories_for_screening
This data flow is sent from the Alerting and Advisory System terminator to provide information to the commercial vehicle clearance screening function concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency. This could include alerts or advisory information provided by the Emergency Alert System. This data could include data to help the Commercial Vehicles Screening function appropriately plan activities and prepare for a response to a disaster or emergency situation.

faas-alerts_and_advisories_for_threat_analysis
This data flow is sent from the Alerting and Advisory Systems and contains generated alerts and advisories to be analyzed from surveillance and sensor equipment in secure areas and is intended to be used for further threat analysis.

faas-alerts_and_advisories_for_traffic
This data flow is sent from the Alerting and Advisory System terminator to provide information to traffic management concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency. This could include alerts or advisory information provided by the Emergency Alert System. This data could include data to help the Manage Traffic function appropriately plan activities and prepare for a response to a disaster or emergency situation.

faas-alerts_and_advisories_for_transit
This data flow is sent from the Alerting and Advisory System terminator to provide information to transit management concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency. This could include alerts or advisory information provided by the Emergency Alert System. This data could include data to help the Manage Transit function appropriately plan activities and prepare for a response to a disaster or emergency situation.

faas-confirm_image_match
This data flow is sent from the Alert and Advisory System to indicate whether analysis of a video image obtained from a surveillance camera was successful or not. The Alert and Advisory System confirms that the identifier of a potential match has matched the input image. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag

faas-image_search_data
This data flow is sent from the Alert and Advisory System to provide a database of known images (criminal elements) to search against when a video image is received for analysis from another process.

faas-threat_support_data
This data flow is sent from Alerting and Advisory Systems and contains information to assist in identifying possible threats.

faas-wide_area_alert_notifications_and_advisories
This data flow is sent from the Alert and Advisory System to provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction.

fada-archive_administration_requests
This data flow contains requests and inputs from the archive data administrator terminator to request that data be archived and the parameters needed to control the import of the data. This data flow also contains the security permission data necessary to ensure the archive data is secure. This data flow contains the requests sent to the Manage Archive function to administer the archive database.

fada-data_collection_device_control
This data flow is sent from the Archive Data Administrator to the Manage Archived Data function to provide control information for data collection and monitoring equipment at the roadside. The sensor equipment includes environmental, HOV, pedestrian, traffic, multimodal crossing, reversible lane, and local sensors for roads and highways.

fadu-archive_analysis_request
This data flow from the Archived Data Users Systems terminator contains the request for analysis or a catalog of data analyses available from the Manage Archived Data function. This request also includes the necessary user information to authenticate the user with the archive.

fadu-archive_data_product_request
This data flow from the Archived Data Users Systems terminator contains the request for data or a catalog of data managed by the Manage Archived Data function. This request also includes the necessary user information to authenticate the user with thearchive.

fadu-on_demand_archive_request
This data flow from the Archive Data User Systems terminator contains a request for data that is not already part of the ITS archive. This request could be a request for data from a user-defined data source, another terminator, or a function within ITS.

fam-asset_archive_data
This data flow from Asset Management to the Manage Archived Data function contains transportation asset data to be archived along with meta data describing the information. This data can include a catalog of the data held by the function. The data contains information about assets including pavements, bridges, and all other infrastructure in the transportation network. It can also cover support assets (support equipment and systems, software, etc.). This data flow contains the following items each of which is defined in its own DDE:

asset_archive_catalog
+ asset_data_for_archive

fam-asset_damage
This data flow is sent from the Asset Management terminator to the Manage Maintenance and Construction function. It provides information regarding damage to the transportation infrastructure - primarily non-ITS assets - such as bridges, roadways, or tunnels. This data may be collected from eyewitness reports, aerial surveillance, field reports, inspections, tests, and analyses.

fam-asset_inventory
This data flow is sent from the Asset Management terminator to the Manage Maintenance and Construction function. It provides information on the transportation infrastructure, including the locations and maintenance condition of each asset, vendor/contractor information, materials information, etc.

fam-asset_maint_and_repair_needs
This data flow is sent from the Asset Management terminator to the Manage Maintenance and Construction function. It provides input on infrastructure repair requirements based on schedules, infrastructure conditions data, etc.

fam-asset_restrictions
This data flow is sent from the Asset Management terminator to the Manage Maintenance and Construction function. It provides information regarding restrictions on transportation asset usage based on infrastructure design, surveys, tests, or analyses. This could include height, width, weight, and special restrictions for bridges; both permanent restrictions, and temporary restrictions due to current maintenance and construction activities are included.

fare_collection_roadside_violation_information
This data is used by the Manage Transit function to send data about a violator of the transit fare collection processes at the roadside, i.e. a transit stop, to the Manage Emergency Services function. This data flow will contain a digitized video image of the traveler who is trying to violate the fare collection process at the roadside. It is assumed that this digitized data will include other data such as date and time, plus camera identity from which the roadside (transit stop) location can be determined. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_route_segment_number
+ traveler_roadside_image
+ traveler_roadside_tag_identity

fare_collection_vehicle_violation_information
This data is used by the Manage Transit function to send data about a violator of the transit fare collection processes on-board the vehicle to the Manage Emergency Services function. This data flow will contain a digitized video image of the traveler who is trying to violate the fare collection process on-board a vehicle. It is assumed that this digitized data will include other data such as

date and time, plus camera identity from which the transit vehicle identity can be determined. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_route_segment_number
+ traveler_vehicle_image
+ traveler_vehicle_tag_identity

fare_payment_violator_data

This data flow is used within the Provide Electronic Payment Services function and contains data about a transit fare payment transaction that was attempted but did not work. It consists of the data items shown below, each of which is defined in its own DDE. For each particular set of data some of the data items may be blank depending on the reason(s) for which the transaction did not work. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ transit_fare

fare_reconciliation

This data flow is sent to other transit management centers by the Manage Transit function and contains data that will allow the use of a common media for fare payment by transit passengers traveling on an adjacent transit agency system.

fare_violation_information

This data is used by the Provide Electronic Payment Services functions to send data about a violator of the transit fare collection processes to the Manage Emergency Services function. This data will contain a digitized video image of the traveler trying to violate the transit fare collection process, plus information about the transit fare and the vehicle or roadside location from which payment was being attempted. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ transit_fare
+ transit_route_number
+ transit_route_segment_number
+ transit_route_use_time
+ traveler_category
+ traveler_roadside_image
+ traveler_vehicle_image
+ traveler_identity

fbcv-brake_condition

This data flow is used within the Manage Commercial Vehicle function. It contains analog data from on-board commercial vehicle sensors from which the current condition of the vehicle's brakes can be determined.

fbcv-distance_traveled

This data flow is used within the Manage Commercial Vehicle function. It contains data from on-board commercial vehicle sensors from which the total distance traveled by the vehicle (miles) can be determined.

fbcv-driver_safety_status

This data flow contains data which on-board commercial vehicle sensors can use to determine the following: driver_state - the ability of the driver to control the vehicle, negative factors being such things as alcohol on the breath, too many mistakes, etc. injuries - any detectable problems with the vehicle occupants, e.g. sudden change in heart rate, pulse, breathing, etc.

fbcv-driver_status

This data flow is used within the Manage Commercial Vehicle function. It contains analog data from on-board commercial vehicle sensors from which the current driver status can be determined.

fbcv-vehicle_characteristics

This data flow represents vehicle characteristics that are sensed at a commercial vehicle roadside checking facility. This data may be acquired by sensors from the vehicle either electronically, optically, or manually and will include data such as size, number of axles, use of trailer, etc.

fbcv-vehicle_identification

This data flow represents identification characteristics that are sensed at a commercial vehicle roadside checking facility. This data may be acquired by optical sensors or manually and will include data such as license plate number, US DOT number, ICC number, bar code, etc.

fbcv-vehicle_identity

This data flow contains the data that uniquely identifies a commercial vehicle. It is setup by manufacture during the construction of the vehicle and cannot be changed by the driver. The data flow consists of the following data item each of which is defined in its own DDE:

vehicle_identity

fbcv-vehicle_safety_status

This data flow is used within the Manage Commercial Vehicle function. It contains analog data from on-board commercial vehicle sensors from which the extent of a vehicle's collision damage can be determined.

fbcv-vehicle_security_status
This data flow contains analog data from the on-board commercial vehicle sensors from which a breach or tamper event can be determined.

fbcv-weight
This data flow contains analog data from on-board commercial vehicle sensors from which the vehicle's gross weight can be determined.

fbia-border_archive_data
This data flow from the Border Inspection Administration to the Manage Archived Data function contains a catalog and details of border crossing and trade related data that may be of interest to the archive data users systems that cannot be obtained directly from ITS functions. This data flow contains the following items each of which is defined in its own DDE:

border_archive_catalog
+ border_data_for_archive

fbia-border_client_request
This data flow contains a request from a border agency for information on a carrier or driver registering for a trade or border crossing program. This data may include the identity of the requesting client and information concerning the vehicles or cargo involved.

fbia-border_prearrival_notice
This data flow contains a notice from a border agency that a driver and its vehicle will be approaching a crossing using expedited pre-processing program. This data may include the manifest that identifies the port of entry, date, and data about the carrier, cargo, and driver.

fbia-fleet_border_clearance_status
This data flow from the border inspection administration contains information on the clearance of a fleet vehicle and its driver and cargo across an international border.

fbia-fleet_client_identification
This data flow contains the carriers common and unique identification number supplied by the border inspection administration.

fbia-fleet_expedited_clearance_response
This data flow contains the response from the border inspection administration to a request to receive expedited clearance of a shipment across the border.

fbia-fleet_expedited_clearance_status
This data flow contains the status from the border inspection administration of a request to receive expedited clearance of a shipment across the border.

fbia-fleet_manifest_receipt
This data flows contains the receipt by the border inspection administration that it has received the freight manifest submitted by the carrier.

fbis-actual_border_wait_time_for_info
This data flow contains the actual time that vehicles have spent in the queue at a border crossing. This may the time period over which the data has been collected and include measures by vehicle type, lane, or type of lane.

fbis-actual_border_wait_time_for_traffic
This data flow contains the actual time that vehicles have spent in the queue at a border crossing. This may the time period over which the data has been collected and include measures by vehicle type, lane, or type of lane.

fbis-border_arrival_notice
This data flow contains a notification from a border inspection system that a driver and its vehicle have arrived at a crossing. This data may include the manifest that identifies the port of entry, date, and data about the carrier, cargo, and driver.

fbis-border_crossing_inspection_results
This data flow contains the results from the border inspection system of a border crossing inspection. This may include identification data for the vehicle, driver, carrier, and cargo involved.

fbis-border_incident_information
This data flow provides detailed incident information gathered by border inspections systems and contains detailed information about an incident at a border crossing which may impact and require the response of agencies along the border.

fbis-border_lane_management
This data flows contains a request from the Border Inspection Systems terminator to direct travelers approaching a border crossing to use particular lanes based on vehicle, cargo, or passenger types.

fbis-border_remote_video_control
This data flow contains a request from the Border Inspection Systems terminator to control closed circuit television (CCTV) images of incidents that occurred on the approaches to a border crossing.

fbis-border_traffic_incident

This data flow from the Border Inspection Systems terminator contains data on an incident occurring at or near a border crossing which may impact traffic in the area.

fbis-border_vehicle_clearance_notice
This data flow contains the results of the of the border clearance checks as it passes through a border inspection facility (i.e. customs).

fbis-border_vehicle_pass_pull_in
This data flow contains the output result of the border agency inspection processes, in terms of a pull-in or pass decision for the vehicle, or a general pull-in pass decision for all vehicles, or a pull-in decision based on a problem with reading the vehicle's tag.

fbis-border_wait_times_archive
This data flow from Border Inspection Systems to the Manage Archived Data function contains a catalog and details of border crossing activity, including records of current, actual, and predicted border wait times. This may include the time period for which the data is valid and measures by vehicle type, lane, or type of lane.

fbis-current_border_wait_time_for_info
This data flow contains the current wait time for traffic at a border crossing. This may include the time period for which the data is valid and measures by vehicle type, lane, or type of lane.

fbis-current_border_wait_time_for_traffic
This data flow contains the current wait time for traffic at a border crossing. This may include the time period for which the data is valid and measures by vehicle type, lane, or type of lane.

fbis-lane_management_inputs
This data flow sent from the Border Inspection Systems to change the dynamic lane management configuration to direct travelers approaching a border crossing to use particular lanes.

fbis-predicted_border_wait_time_for_info
This data flow contains the predicted wait time for traffic at a border crossing. This may include the time period for which the prediction is valid and measures by vehicle type, lane, or type of lane.

fbis-predicted_border_wait_time_for_traffic
This data flow contains the predicted wait time for traffic at a border crossing. This may include the time period for which the prediction is valid and measures by vehicle type, lane, or type of lane.

fbis-traveler_border_status
This data flow is sent from the border inspection system to provide traveler information systems with status information about the border crossing including wait times, closures, incidents, and lane assignments.

fbmcv-basic_mcv_measures
This data flow contains the operational status of various systems on the maintenance and construction vehicle, including brake wear, engine temperature, mileage, tire wear, belt wear, engine and brake system status, and safety system status. It consists of the following data item which is defined in its own DDE:

vehicle_system_status

fbmcv-materials_status
This data flow is used within the Manage Maintenance and Construction function and contains information about the types of materials stored and materials usage rates.

fbtv-availability
This data flow is sent from the transit vehicle to the Manage Transit function. It defines the availability of a transit vehicle in terms of its identity, type, and passenger capacity.

fbtv-transit_vehicle_disable_acknowledge
This data flow from the Basic Transit Vehicle terminator acknowledges that the on-board equipment has received the command to disable the transit vehicle. This may also include an indicator of whether or not the command will be carried out.

fbtv-vehicle_maintenance_data
This data flow is sent from the transit vehicle to the Manage Transit function. It contains analog data from which various aspects of the transit vehicle operation can be determined for future maintenance purposes.

fbtv-vehicle_trip_data
This data flow is sent from the Basic Transit Vehicle terminator to the Manage Transit function. It contains analog data from which various aspects of the transit vehicle operation can be determined so that its performance on the current trip can be

fbv-brake_servo_response
This data flow is sent from the basic vehicle to the Provide Vehicle Monitoring and Control function. It contains analog input which indicates that the vehicle's brake has been moved.

fbv-crash_sensor_data
This data flow contains analog data from on-board vehicle sensors and consists of information which shows whether the vehicle has been involved in a collision producing a front impact, a left side impact, a right side impact, or a rear impact, plus details of the collision extent and passenger injuries.

fbv-diagnostics_data
This data flow is sent from the basic vehicle to the Provide Vehicle Control and Monitoring function and contains data from on-board vehicle diagnostics functions from which the vehicle's operational status can be determined.

fbv-driver_safety_status
This data flow contains sensor data from which driver's state and possible injuries can be determined. The driver's state could include an indication of the ability of the driver to control the vehicle, negative factors being such things as alcohol on the breath, too many mistakes, etc. Injury indicators could pick up on any detectable problems with the vehicle occupants, e.g. sudden change in heart rate, pulse, breathing, etc.

fbv-steering_servo_response
This data flow is sent from the basic vehicle to the Provide Vehicle Monitoring and Control function. It contains analog input which indicates that the vehicle's steering has been moved.

fbv-throttle_servo_response
This data flow is sent from the basic vehicle to the Provide Vehicle Monitoring and Control function. It contains analog input which indicates that the throttle has been moved.

fbv-vehicle_attitude_data
This data flow contains data obtained from on-vehicle sensors indicating the vehicle's attitude, i.e. right-way up (normal), upside-down, on its side, etc.

fbv-vehicle_condition
This data flow contains analog data about the vehicle's current condition from which its suitability for operation on automatic vehicle operations lanes can be determined. This flow would be made up of the following information: brake condition, drive train condition, forward sensors condition, rear sensors condition, side sensors condition, steering condition, vehicle processor condition, fuel level, tire wear and pressure, vehicle external communication condition, and vehicle internal communication condition.

fbv-vehicle_headway
This data flow is sent from the basic vehicle to the Provide Vehicle Control and Monitoring function. It contains on-board vehicle sensor input from which the distance between the vehicle and the one in front (headway) can be computed.

fbv-vehicle_identity
This data flow is sent from the basic vehicle to the Manage Traffic and the Provide Vehicle Monitoring and Control functions. It contains the identity of the vehicle from which other data such as ownership, vehicle type, plus data from the Department of Motor Vehicles (DMV) can be obtained.

fbv-vehicle_lane_position
This data flow contains analog data from on-board vehicle sensors input from which the vehicle's position within a lane can be computed.

fbv-vehicle_motion_data
This data flow contains analog data obtained from on-vehicle sensors indicating whether the vehicle is moving in a forward, sideways, or backwards, or in any combined direction.

fbv-vehicle_occupants
This data flow contains data from on-board monitors that can detect when seats are occupied.

fbv-vehicle_on_avo_lane
This data flow contains sensor input from which the type of automated vehicle operations lane (if any) in which the vehicle is traveling can be computed.

fbv-vehicle_proximity_data
This data flow contains analog data obtained from on-vehicle sensors including but not limited to those covering headway, i.e. distance between vehicle and the next vehicle in front, lateral distance, i.e. the distance between the vehicle and any objects on either side, and rear distance.

fbv-vehicle_safety_status
This data flow contains analog data from on-board vehicle sensors from which the extent of a vehicles collision damage can be determined.

fbv-vehicle_security_status
This data flow, which comes directly from the vehicle, contains the status of the vehicle's security systems, which include the lock system and/or alarm system.

fbv-vehicle_speed
This data flow is sent from the basic vehicle to the Provide Vehicle Control and Monitoring function. It contains analog data from on-board vehicle sensors from which the vehicle's speed can be computed.

fcf-care_facility_status_for_isp
This data flow contains information regarding the current status of the care facility. It includes information regarding if the facility is accepting new arrivals, staff on call, waiting times, type of care currently available, specialized services (trauma, burn units), etc.

fcf-care_facility_status_response
This data flow contains information regarding the current status of the care facility. It includes information regarding if the facility is accepting new arrivals, staff on call, waiting times, type of care currently available, specialized services (trauma, burn units), etc.

fcf-care_facility_status_response_for_disaster
This data flow contains information regarding the current status of the care facility. It includes information regarding if the facility is accepting new arrivals, staff on call, waiting times, type of care currently available, specialized services (trauma, burn units), etc. This data is used to assist in establishing a disaster response and recovery plan.

fcf-care_facility_vehicle_status_response
This data flow contains the information regarding the current status of the emergency care facility. This information is provided to the emergency personnel on-board the vehicle. It contains information about the location, specialized services, quality of care, waiting time, number of rooms available, and emergency room status of hospitals or emergency care providers.

fci-credentials_data_request
This data flow is sent from the commercial vehicle roadside facility inspector to the Manage Commercial Vehicles function. It contains a request for the output of the credentials data for a particular combination of carrier, vehicle and driver.

fci-inspection_data_input
This data flow is sent from the commercial vehicle roadside facility inspector to the Manage Commercial Vehicles function. It contains data about a commercial vehicle inspection that can only be supplied by the inspector.

fci-pull-in_action
This data flow is sent from the commercial vehicle roadside facility inspector to the Manage Commercial Vehicles function. It contains an override of the pull-in or pass decision made as a result of the safety or preclearance processing for a commercial vehicle.

fci-request_log_report
This data flow is sent from the commercial vehicle roadside facility inspector to the Manage Commercial Vehicles function. It contains a request for a part of the commercial vehicle roadside facility log to be output to its operator.

fci-safety_data_request
This data flow is sent from the commercial vehicle roadside facility inspector to the Manage Commercial Vehicles function. It contains a request for output of the safety data for a particular carrier, driver and vehicle being held in the commercial vehicle roadside facility safety database.

fci-start_inspection
This data flow represents the roadside commercial vehicle inspectors' initiation of a vehicle inspection. The size assumption is based on some form of electronic signature of an authorized inspector.

fcvd-activity_request
This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and contains an activity number which may describe, but not be limited to, request route, request preclearance, store route, provide list of stored route, display route details, and delete route.

fcvd-carrier_number
This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and contains the commercial vehicle carrier identification number to be entered into the commercial vehicle's tag data store.

fcvd-driver_characteristics
This data flow contains either sensed biometric properties of an individual commercial vehicle driver or a personal identification code that was entered by the driver.

fcvd-driver_data_input
This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and includes the driver's log data as required by state and federal agencies as well as requested data for the previously input data type. This data is to be used by the on-board vehicle data collection system.

fcvd-driver_general_message
This data flow and contains a general message for output to the commercial vehicle fleet manager as part of the on-board vehicle data. Its size will be restricted in a way that will depend upon the mechanism by which the data is input.

fcvd-driver_input_type
This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and contains an indication of the type of data that the driver wants to input to the on-board vehicle data collection system. This type may be one of the following: cargo data, repairs and service records, inspection and maintenance data, fuel purchase data, driver identity, driver credentials, driver license citations, carrier identity, data store contents.

fcvd-driver_number
This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and contains the commercial vehicle driver identification number to be entered into the commercial vehicle's tag data store.

fcvd-driver_response
This data flow contains a commercial vehicle driver's response to a security or safety related alert which has been detected on-board a commercial vehicle or by the fleet-freight manager.

fcvd-enrollment_payment_request
This data flow contains a request for payment of the taxes and duties needed to cover the enrollment of a particular class of vehicle and cargo at a particular weight on a particular route. The data will include the account number from which the costs are to be deducted and the route number to which they apply. Drivers will make this request because they are acting on the role of their own fleet managers, i.e. they will be owner drivers.

fcvd-enrollment_request
This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and contains a request for the enrollment of a particular class of vehicle and cargo at a particular weight on a particular route. Drivers will make this request because they are acting on the role of their own fleet managers, i.e. they will be owner/operators.

fcvd-other_data_input
This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and contains the response to an earlier request for input of other data. Drivers will make this request because they are acting on the role of their own fleet managers, i.e. they will be owner drivers.

fcvd-request_routing_instructions
This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and contains a request for instructions on which route to take and any cargo that must be picked up or dropped off at the origin, destination and/or intermediate points along the route. This data does not include any route guidance instructions as the driver will be able to obtain this data through the Provide Driver and Traveler Services function when the route origin, destination and intermediate points are known.

fcvd-request_tag_data_output
This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function. It contains a request for the output of the current data that is stored on a commercial vehicle's two tag. Only the data that can be written by the manager is output.

fcvd-route_data
This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and contains data input in response to a previous request for the input of route data. Drivers will make this request because they are acting on the role of their own fleet managers, i.e. they will be owner drivers.

fcvd-route_request
This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and contains a request for a route to be provided. Drivers will make this request because they are acting on the role of their own fleet managers, i.e. they will be owner drivers.

fcvd-trip_identification_number
This data flow is used within the Manage Commercial Vehicle function. It contains the unique trip load number for a specific cross-border shipment for the commercial vehicle driver. The data flow consists of the following data item each of which is defined in its own DDE:

cv_trip_identity

fcvd-vehicle_number
This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and contains the commercial vehicle identification number to be entered into the commercial vehicle's tag data store.

fcvoir-record_review_request
This data flow contains a request from an authorized Commercial Vehicle Information Requestor for a review of a motor carrier's record for potential errors or mis-assignments.

fd-activate_vehicle_control
This data flow is used by a vehicle driver to activate automatic control of the vehicle.

fd-driver_vehicle_access_request
This data flow is used by a vehicle driver to activate automatic access to a secure area or facility and includes the necessary identity and configuration data.

fd-emergency_request
This data flow is sent from the driver and to the Provide Driver and Traveler Services function. It may consist of any the following items: medical services required - please send medical assistance; other vehicle damage crash - a crash has occurred involving other vehicles; minor property damage only crash - a crash has occurred which only involves minor property damage; breakdown - the vehicle has broken down; security alarm - driver in danger, please send emergency services; cancel - cancel any previous emergency request. Several items may be sent simultaneously with the exception of the last one which will be sent on its own.

fd-guidance_data
This data flow is input by a driver to the Provide Driver and Traveler Services function and contains data requested so that a vehicle route can be determined for which on-line guidance can be provided.

fd-guidance_map_update_request
This data flow is sent from the driver to the Provide Driver and Traveler Services function and contains a request for an update of the digitized map data used to provide on-line vehicle guidance.

fd-guidance_request

This data flow is sent from the driver to the Provide Driver and Traveler Services function. It contains a request to provide on-line guidance of the driver's vehicle and specifies a choice of the type of preferred guidance, i.e. infrastructure based dynamic, autonomous with link journey and queue times provided from the infrastructure, and totally autonomous. The driver will be prompted for further data in order that the guidance can begin.

fd-guidance_route_accepted

This data flow is sent from the driver to the Provide Driver and Traveler Services function. It contains acceptance of the route that has been generated in response to a previous request from the driver for on-line guidance. Guidance will not begin until the acceptance has been received.

fdic-driver_cred_info

This data flow provides Commercial Vehicle on-board systems with information stored on an electronic Driver Information Card. It contains the following data items each of which is defined in its own DDE:

cv_driver_number
+ cv_driver_credentials
+ cv_driver_identity_characteristic_key

fdic-driver_info

This data flow provides the Manage Commercial Vehicle Fleet process with information stored on an electronic Driver Information Card. It contains the following data items each of which is defined in its own DDE:

cv_driver_number
+ cv_driver_credentials
+ cv_driver_identity_characteristic_key

fdic-driver_information

This data flow provides Commercial Vehicle Roadside Facilities with information stored on an electronic Driver Information Card. It contains the following data items each of which is defined in its own DDE:

cv_driver_number
+ cv_driver_credentials
+ cv_driver_identity_characteristic_key

fdmv-cv_violation_vehicle_registration

This data flow is sent from the Department of Motor Vehicles to the Manage Emergency Services function and contains the requested vehicle registration data to enable a commercial vehicle credential filing or tax payment violation to be processed.

fdmv-emissions_violation_state_identity

This data flow is sent from the department of motor vehicles to the Manage Emergency Services function and contains the identity of the state that is supplying the requested vehicle registration data to enable a emissions violation to be processed.

fdmv-emissions_violation_vehicle_registration

This data flow is sent from the department of motor vehicles to the Manage Emergency Services function and contains the requested vehicle registration data to enable a pollution violation to be processed.

fdmv-parking_lot_violation_state_identity

This data flow is sent from the department of motor vehicles to the Manage Emergency Services function and contains the identity of the state that is supplying the requested vehicle registration data to enable a parking lot payment violation to be processed.

fdmv-parking_lot_violation_vehicle_registration

This data flow is sent from the department of motor vehicles to the Manage Emergency Services function and contains the requested vehicle registration data to enable a parking lot payment violation to be processed.

fdmv-toll_violation_state_identity

This data flow is sent from the department of motor vehicles to the Manage Emergency Services function and contains the identity of the state that is supplying the requested vehicle registration data to enable a toll payment violation to be processed.

fdmv-toll_violation_vehicle_registration

This data flow is sent from the department of motor vehicles to the Manage Emergency Services function and contains the requested vehicle registration and odometer data to enable a toll or VMT payment violation to be detected and processed as appropriate.

fdmv-traffic_violation_state_identity

This data flow is sent from the department of motor vehicles to the Manage Emergency Services function and contains the identity of the state that is supplying the requested vehicle registration data to enable a high occupancy vehicle (hov) lane to be processed.

fdmv-traffic_violation_vehicle_registration

This data flow is sent from the department of motor vehicles to the Manage Emergency Services function and contains the requested vehicle registration data to enable a high occupancy vehicle (hov) lane to be processed.

fdmv-vehicle_state_id

This data flow is sent from the Department of Motor Vehicles (DMV) to the Provide Open Road Tolling function and contains the identity of the state that is supplying the requested vehicle registration data to enable a road use charging violation to be processed.

fdmv-vmt_vehicle_registration
This data flow is sent from the Department of Motor Vehicles (DMV) to the Provide Open Road Tolling function and contains the requested vehicle registration and odometer data to enable a road use charge violation to be detected and processed as appropriate.

fd-other_services_parking_request
This data flow is input from a driver to the Provide Driver and Traveler Services function and contains a request for additional services other than simple parking lot charge collection. These may comprise advanced payment of fares, parking lot charges, or toll charges.

fd-other_services_toll_request
This data flow is input from a driver to the Provide Driver and Traveler Services function and contains a request for additional services other than simple toll collection. These services may comprise advanced payment of fares, parking lot charges, or toll charges. The information provided by the driver must include sufficient information for the parking lot charge and/or transit fare to be determined.

fd-request_advisory_information
This data flow is sent from the driver to the Provide Driver and Traveler Services function and contains input from the driver specifying the type of advisory display required or to be disabled.

fd-vehicle_display_configuration_override
This data flow is sent from the driver to the Provide Driver and Traveler Services function and contains input from the driver to override certain default settings for the in-vehicle display and processing, e.g. vehicle height, trailer connected, axles, snow chains, etc.

fd-vehicle_display_configuration_setting
This data flow is sent from the driver to the Provide Driver and Traveler Services function and contains input from the driver to establish configurable settings for the in-vehicle display and processing, e.g. vehicle height, trailer connected, axles, snow chains, etc.

fea-cv_enforcement_agency_response
This data flow is sent from the enforcement agency to the Manage Commercial Vehicles function. It contains the response from an enforcement agency to the previous request for data from the commercial vehicle administration facility. The size estimate below is based on a coded response to a standardized query.

fea-cv_enforcement_configuration
This data flow is sent from an Enforcement Agency to the Administer Commercial Vehicles function to configure the trigger areas for a commercial vehicle enforcement activity, including locations, times, and items of focus (vehicle or cargo types, permit classifications, etc.).

fea-cv_enforcement_control
This data flow is sent from an Enforcement Agency to the Administer Commercial Vehicles function to control the start, end, and other parameters for commercial vehicle enforcement activities within a certain pre-configured trigger area.

fea-cv_enforcement_targets
This data flow is sent from an Enforcement Agency to the Administer Commercial Vehicles function to identify carriers (commercial fleet operators), drivers/operators, and/or vehicles of interest for commercial vehicle enforcement.

fea-enforcement_parameters
This data flow contains parameters used by the receiving process to determine when speed violations have occurred. The parameters would include the speed above which a speed violation is considered to have occurred.

fea-speed_sensor_control
This data flow provides control commands for speed sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{sensor_identity
+ speed_sensor_control}

fea-violator_information
This data flow is used within the Manage Commercial Vehicles function. It contains information in response to a request from Enforcement Agencies for more information on violators relating to commercial vehicle violations or entity specific violations.

feedback_actuator_response
This data flow is used within the Provide Vehicle Control and Monitoring function. It contains feedback of the response from various on-board vehicle actuators and consists of the following data items each of which is defined in its own DDE:

manual_brake_input_detected
+ manual_steering_input_detected
+ manual_throttle_input_detected

feedback_actuator_status
This data flow is used within the Provide Vehicle Monitoring and Control function and contains the current status (manual input or normal operation) of and the pass/fail result of the Built In Self Test (BIST) processing.

feedback_change_lane_servo_status
This data flow is used within the Provide Driver Monitoring and Control function. It contains the current status of and the result of the Built In Self Test (BIST) processing.

feedback_headway_servo_status
This data flow is used within the Provide Driver Monitoring and Control function. It contains the current status of and the result of the Built In Self Test (BIST) processing.

feedback_lane_servo_status
This data flow is used within the Provide Driver Monitoring and Control function. It contains the current status (manual input or normal operation) of and the result of the Built In Self Test (BIST) processing.

feedback_platoon_status
This data flow is used within the Provide Driver Monitoring and Control function. It contains the current status of, and the result of the Built In Self Test (BIST) processing. The status could include manual input detected, normal operation, or if the vehicle or driver is unsafe.

feedback_sensor_status
This data flow is used within the Provide Driver Monitoring and Control function. It contains the current status (manual input or normal operation) of and the result of the Built In Self Test (BIST) processing.

feedback_servo_status
This data flow is used within the Provide Driver Monitoring and Control function. It is a combination of all the status and Built In Self Test (BIST) result flows from the four servo control processes. It consists of the following data items each of which is defined in its own DDE:

feedback_speed_servo_status
+ feedback_headway_servo_status
+ feedback_lane_servo_status
+ feedback_change_lane_servo_status

feedback_speed_servo_status
This data flow is used within the Provide Driver Monitoring and Control function. It contains the current status (manual input or normal operation) of and the result of the Built In Self Test (BIST) processing.

femo-emissions_and_pollution_data_information_request
This data flow is sent from the emissions operations personnel to the Manage Traffic function and contains a request for a display of pollution or emissions reference data, or current pollution state or vehicle emissions data.

femo-emissions_and_pollution_parameter_updates
This data flow is sent from the emissions operations personnel to the Manage Traffic function and contains a request for specified pollution or emissions reference data values to be updated to those provided. It also contains configuration and control information for pollution and emissions sensors.

femo-pollution_data_information_request
This data flow is sent from the emissions operations personnel to the Manage Traffic function and contains a request for a display of pollution reference or current pollution state data.

femo-pollution_parameter_updates
This data flow is sent from the emissions operations personnel to the Manage Traffic function and contains a request for specified pollution reference data values to be updated to those provided.

fep-barrier_system_control
This data flow is received from the emergency personnel and is used to request activation of a barrier system (gates and other automated systems for roadway entry control).

fep-emergency_dispatch_acknowledge
This data flow is sent from the emergency personnel to the Manage Emergency Services function to acknowledge that the emergency vehicle has been dispatched and is on its way to the incident identified in the dispatch request.

fep-incident_command_inputs
This data flow identifies commands, status, and resource requests associated with local management of an evolving incident response by emergency personnel in the field.

fep-incident_status
This data flow is sent from the emergency personnel to report the current status of an incident, e.g. length of time to clear site, length of time involved in work at site, type of incident, incident severity, and the location. It also includes information regarding the status of patients or persons involved in the incident. It may include real time information from emergency personnel in the vehicles en-route to emergency care facilities.

fe-pollutant_levels
This data flow is used within the Manage Traffic function. It contains analog data from which ITS sensors can determine the actual levels of various atmospheric pollutants, such as nitrogen oxides, sulfur dioxide, hydrocarbons, carbon monoxide and ozone.

ferf-current_fleet_maintenance_status
This data flow is sent from the equipment repair facility to the Manage Maintenance and Construction function and includes information on the maintenance status of all of the maintenance and construction vehicles in the fleet.

ferf-equipment_repair_status
This data flow is sent from the equipment repair facility to the Manage Maintenance and Construction function and includes information on the maintenance and repair status of all of the maintenance and construction support equipment.

ferf-equipment_status_for_tracking
This data flow is sent from the equipment repair facility to the Manage Maintenance and Construction function and includes data on the maintenance and repair status, and location of all of the maintenance and construction support equipment.

ferf-fleet_maintenance_record
This data flow is sent from the equipment repair facility to the Manage Maintenance and Construction function and includes the actual maintenance and repair record of each of the maintenance and construction vehicles in the fleet.

ferry_services_costs
This data flow is used within the Provide Driver and Traveler Services function and contains details of the costs for a traveler's use of the services provided by ferry operators that may be suitable for use by a traveler as part of a proposed trip. The data flow consists of the following data item which is defined in its own DDE:

cost

ferry_services_destination
This data flow is used within the Provide Driver and Traveler Services function. It contains the destination of the ferry service(s) that are the closest fit with a traveler's proposed trip plan. This destination may be different to that provided in the multimodal services request as it will be a ferry port, rather than a town, or other geographic point. It may also not be the destination of the service operated by the ferry company as the traveler may be leaving at some intermediate point. The data flow consists of the following data item which is defined in its own DDE:

route_point

ferry_services_destination_arrival_time
This data flow is used within the Provide Driver and Traveler Services function. It contains the time at which a ferry arrives the destination point for ferry services in a traveler's trip plan. This destination may not be the actual final destination of the service operated by the ferry, because the traveler may be leaving at some intermediate point along its route. The service will be a close fit with a traveler's proposed trip plan. The data flow consists of the following data item which is defined in its own DDE:

time

ferry_services_details
This data flow is used within the Provide Driver and Traveler Services function and contains details of the services provided by ferry operators that may be suitable for use by a traveler as part of a proposed trip. It consists of the following data items each of which is defined in its own DDE:

ferry_services_costs
+ ferry_services_routes
+ ferry_services_schedules
+ ferry_services_status

ferry_services_intermediate_arrival_time
This data flow is used within the Provide Driver and Traveler Services function. It contains the time at which a ferry arrives at an intermediate point on the part of a traveler's route to be provided by this type of service. These points are those at which the traveler has to change from one ferry to another, or has a significant stop over time. There may be other intermediate points on the route operated by the ferry service, but they are ignored because the traveler is expected to do nothing other than remain on-board the ferry. The route will be that which provides a service that is a close fit to the requirements of the traveler's proposed trip. The data flow consists of the following data item which is defined in its own DDE:

time

ferry_services_intermediate_depart_time
This data flow is used within the Provide Driver and Traveler Services function. It contains the time at which a ferry departs from an intermediate point on the part of a traveler's route to be provided by this type of service. These points are those at which the traveler has to change from one ferry to another, or has a significant stop over time. There may be other intermediate points on the route operated by the ferry service, but they are ignored because the traveler is expected to do nothing other than remain on-board the ferry. The route will be that which provides a service that is a close fit to the requirements of the traveler's proposed trip. The data flow consists of the following data item which is defined in its own DDE:

time

ferry_services_intermediate_point
This data flow is used within the Provide Driver and Traveler Services function. It contains the location of an intermediate point on a route operated by a ferry company. They will all be the locations of ferry ports at which the traveler will have to change from one ferry to another, or where the ferry schedule has a significant stop over time. All other stops on the ferry service will

ignored. The ferry's route will be that which provides the service that is a close fit to the requirements of the traveler's proposed trip. The data flow consists of the following data item which is defined in its own DDE:

route_point

ferry_services_origin

This data flow is used within the Provide Driver and Traveler Services function. It contains the origin of the ferry service(s) that are the closest fit with a traveler's proposed trip plan. This origin may be different to that provided in the multimodal services request as it will be a ferry port, rather than a town, or other geographic point. It may also not be the origin of the service operated by the ferry company as the traveler may be joining it at some intermediate point. The data flow consists of the following data item which is defined in its own DDE:

route_point

ferry_services_origin_depart_time

This data flow is used within the Provide Driver and Traveler Services function. It contains the time at which a ferry leaves the origin point for ferry services in a traveler's trip plan. This origin may not be the actual origin of the ferry service because the traveler may be joining at some intermediate point along its route. The service will be a close fit with a traveler's proposed trip plan. The data flow consists of the following data item which is defined in its own DDE:

time

ferry_services_route_details

This data flow is used within the Provide Driver and Traveler Services function. It contains details of a ferry route that will suit a traveler's proposed trip and is associated with a cost and a schedule. The route may have intermediate points at which the services calls, and at which the traveler may have to change from one ferry to another. There may be other intermediate points on the flight but these are of no concern to the traveler. The data flow consists of the following data items each of which is defined in its own DDE:

ferry_services_origin
+ ferry_services_intermediate_point
+ ferry_services_destination

ferry_services_routes

This data flow contains details of the routes served by ferry operators. These may be suitable for use by a traveler as part of a proposed trip. It consists of the following data item which is defined in its own DDE:

ferry_services_route_details

ferry_services_schedule_details

This data flow is used within the Provide Driver and Traveler Services function. It contains details of the departure and arrival times at places along a ferry route that will suit a traveler's proposed trip and is associated with a cost and a route. The data flow consists of the following data items each of which is defined in its own DDE:

ferry_services_origin_depart_time
+ ferry_services_intermediate_arrival_time
+ ferry_services_intermediate_depart_time
+ ferry_services_destination_arrival_time

ferry_services_schedules

This data flow contains details of the schedules of services on the routes served by ferry operators which may be suitable for use by a traveler as part of a proposed trip. It consists of the following data item which is defined in its own DDE:

ferry_services_schedule_details

ferry_services_status

This data flow contains the status of nearby ferry ports (open or closed, general port delays, etc.).

feso-alerts_and_advisories

This data flow is sent from the Emergency System Operator to the Manage Emergency Services function and contains alerts and advisory information. This flow can provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction and to be on the look out for certain conditions.

feso-archive_commands

This data flow is sent from the Emergency System Operator to the Manage Emergency Services function and contains data administration commands that the Emergency Management function will use to control the archival of data by the Manage Archived Data function. These commands may include the data that is to be archived, how the data is processed, how the data is stored, data elements that are deleted, etc.

feso-emergency_action_log_request

This data flow is sent by the emergency system operator to the Manage Emergency Services function. It contains a request for output of the emergency services action log. This records responses to all incidents, disaster, or other emergencies that have been reported through this function from the other Emergency Management Centers, the E911 or Emergency Telephone Services, or by other ITS functions.

feso-emergency_allocation_override
This data flow is sent by the emergency system operator to the Manage Emergency Services function. It contains an override of the current pre-defined allocation of emergency services to respond to a particular current incident, disaster, or other emergency.

feso-emergency_data_input
This data flow is sent by the emergency system operator to the Manage Emergency Services function. It contains the operator's request for one of the following: no action, override the emergency services allocation for an incident (requires the number and type), data for the allocation criteria store, a request for output from the log, or a request for output of the criteria store.

feso-emergency_data_output_request
This data flow is sent by the emergency system operator to the Manage Emergency Services function. It contains a request for output of the data that defines the emergency services that must be allocated for all the different types of incidents, disasters, and other emergencies that can be detected by processes within ITS functions.

feso-emergency_display_update_request
This data flow is sent by the emergency system operator to the Manage Emergency Services function. It contains the operator's request for an update to be obtained of the digitized map data that is used as the background for the output of incident and emergency data to the operator.

feso-emergency_response
This data flow is sent by the emergency system operator to the Manage Emergency function and is used to acknowledge the receipt of an emergency request previously sent by the Manage Emergency function.

feso-emergency_routing_input
Input of suggested route information, routing parameter changes, and preemption requests.

feso-image_processing_parameters
This data flow contains parameters to define how the surveillance video image data collected from secure areas (frequented by travelers, such as transit stops, rest areas, park and ride lots, etc., or away from travelers, such as tunnels and bridges, etc.) for use in image matching analysis is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing in the field and may include the timeframe in which to search, the image characteristics that are to be analyzed, the location, etc.

feso-secure_area_sensor_surveillance_control
This data flow is sent from the Emergency System Operator to the Manage Emergency Services function and contains configuration and control information for sensor and surveillance equipment in secure areas, including those frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) or areas typically away from travelers (i.e., bridges, tunnels, and other infrastructure). This data flow also includes parameters for processing the data and for detecting threats.

fets-caller_information
This data flow contains information about the caller including a call-back number and the caller location (as a street address, latitude/ longitude, or other reference) when available. The details of this incident are contained in a parallel data flow.

fets-incident_data_FB
This data flow contains incident data and information about the caller supplying the information. It consists of the following data items each of which is defined in its own DDE:

fets-caller_information
+ fets-incident_information

fets-incident_information
This data flow contains information about an incident as reported by a caller or caller device. Thought specific data items are defined, in many cases the information will be a verbal report with various inaccuracies and omissions. It consists of the following data items each of which is defined in its own DDE:

incident_location
+ incident_description
+ incident_severity
+ incident_type

fevp-event_data_for_transit
This data flow is sent from the Event Promoters terminator to the Manage Transit function. It carries details about special events that may impact transit travel. This data flow also contains contact information for the event which would include the phone number, address, and name of the organization or person responsible for the event or reporting the event.

fevp-event_information
This data flow is sent from the event promoters terminator to the Manage Traffic function and contains details of a special event that may become a possible incident due to its impact on the traffic flowing on one or more lanes of a road or highway. This data flow also contains contact information for the event which would include the phone number, address, and name of the organization or person responsible for the event or reporting the event.

fevp-event_information_for_travelers
This data flow is sent from the event promoters directly to the Provide Driver and Traveler Services function and contains

information that might be of interest to travelers planning trips, particularly information on special events.

fevp-planned_event_data

This data flow is sent from the event promoters terminator directly to the Manage Emergency Services function. It carries data about planned events in order to coordinate with the emergency service providers and process information about planned activities in preparation for an incident.

ffe-breach_warning

This data flow contains breach or tamper event data for freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

freight_breach

ffe-breach_warning_for_cv

This data flow contains breach or tamper event data for freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

freight_breach

ffe-cargo_info_for_cv

This data flow contains safety and characteristic information of cargo contained in freight equipment. The data flow consists of the following data item which is defined in its own DDE:

cargo_data
+ cargo_safety_status

ffe-cargo_information

This data flow contains safety and characteristic information of cargo contained in freight equipment. The data flow consists of the following data item which is defined in its own DDE:

cargo_data
+ cargo_safety_status

ffe-freight_breach

This data flow contains breach or tamper event data for freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

freight_breach

ffe-freight_equipment_info

This data flow contains container, trailer or chassis information in support of freight equipment operations, maintenance, and integrity. The data flow consists of the following data items each of which is defined in its own DDE:

freight_operations
+ freight_maintenance
+ freight_equipment_location
+ freight_integrity
+ cargo_data
+ cargo_safety_status

ffe-integrity_data

This data flow contains freight equipment data from which a breach or tamper incident can be evaluated. The data flow consists of the following data items each of which is defined in its own DDE:

freight_integrity

ffe-integrity_data_for_cv

This data flow contains freight equipment data from which a breach or tamper incident can be evaluated. The data flow consists of the following data items each of which is defined in its own DDE:

freight_integrity

ffe-location_data

This data flow contains location data from freight equipment used by many processes. The data flow consists of the following data item that is defined in its own DDE:

freight_equipment_location

ffe-location_data_for_cv

This data flow contains location data from freight equipment used by many processes. The data flow consists of the following data item that is defined in its own DDE:

freight_equipment_location

ffe-lock_tag_data

This data flow is sent from freight equipment to the Manage Commercial Vehicles function. It contains the current status of the lock tag that is used to control access to freight equipment cargoes that are being taken across borders, and is sent in response to an earlier request.

ffe-lock_tag_data_for_cv

This data flow is sent from a freight equipment to the Manage Commercial Vehicles function. It contains the current status of the lock tag that is used to control access to freight equipment cargoes that are being taken across borders, and is sent in response to an earlier request.

ffe-maintenance_data

This data flow contains data regarding wear items on freight equipment, such as brakes, tires, etc., from which maintenance plans are developed. The data flow consists of the following data items each of which is defined in its own DDE:

freight_maintenance

ffe-maintenance_data_for_cv

This data flow contains data regarding wear items on freight equipment, such as brakes, tires, etc., from which maintenance plans are developed. The data flow consists of the following data items each of which is defined in its own DDE:

freight_maintenance

ffe-operational_data

This data flow contains information regarding the availability of freight equipment. It provides information regarding load status (i.e. trailer empty), chassis status (i.e. chassis bare) and other indicators that determine the availability of freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

freight_operations

ffe-operational_data_for_cv

This data flow contains information regarding the availability of freight equipment. It provides information regarding load status (i.e. trailer empty), chassis status (i.e. chassis bare) and other indicators that determine the availability of freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

freight_operations

ffe-sensed_hazmat

This data flow represents the hazardous material characteristics sensed at a commercial vehicle roadside checking facility. This data is acquired by roadside sensors from the freight equipment electronically, optically, or manually and will include data such as such as type of hazardous material.

fffm-carrier_number

This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function and contains the commercial vehicle carrier identification number to be entered into the vehicle's tag data store.

fffm-driver_number

This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function and contains the commercial vehicle driver identification number to be entered into the vehicle's tag data store.

fffm-enrollment_payment_request

This data flow contains a request for payment of the taxes and duties needed to cover the enrollment of a particular class of vehicle and cargo at a particular weight on a particular route. The data will include the account number from which the cost of the taxes and duties are to be deducted and the route number to which they apply.

fffm-enrollment_request

This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function and contains a request for the enrollment of a particular class of vehicle and cargo at a particular weight on a particular route.

fffm-freight_data_input

This data flow is sent from the freight manager to the Manage Commercial Vehicles function and contains data to support freight transportation booking and scheduling freight equipment maintenance.

fffm-freight_incident_response

This data flow contains the response from a fleet-freight manager to a security alert involving freight equipment. The response may be a request further information or a command to alert public safety authorities of a freight incident.

fffm-incident_response

This data flow contains the response from a fleet-freight manager to a security alert involving a commercial vehicle. The response may be a request further information or a command to alert public safety authorities of a commercial vehicle incident.

fffm-other_data_input

This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function and contains the response to a previous request for other data to be input for use within the function.

fffm-preclearance_data
This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function and contains input data defining the route and vehicle identity for which preclearance is required.

fffm-request_driver_route_instructions
This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function and contains a request for the data that defines the route that the commercial vehicle driver is to follow and/or details of cargo to be picked up and/or dropped at the origin, destination or intermediate points.

fffm-request_on_board_vehicle_data
This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function. It contains a request for the data that has been obtained from the store of safety and trip related data on-board a commercial vehicle.

fffm-request_tag_data_output
This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function. It contains a request for the output of the current data that is stored on a commercial vehicle's tag. Only the data that can be written by the manager is output.

fffm-roadside_activity_report_request
This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function. It contains a request for output of the commercial vehicle roadside checkstation facility logs, showing the activities of a particular carrier, driver and vehicle combination. The request may be for a one time report or for the report to be produced periodically.

fffm-route_data
This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function and contains input defining the requested commercial vehicle route data, e.g. origin, destination, preferences, constraints, etc.

fffm-route_function_request
This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function. It contains an activity number which may signify, but not be limited, to request route, request preclearance, store route, provide list of stored routes, display route details, or delete route.

fffm-trip_identity
This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function and contains the commercial vehicle trip identification number to be entered into the vehicle's tag data store. The data flow consists of the following data item each of which is defined in its own DDE:

cv_trip_identity

fffm-update_driver_route_instructions
This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function and contains changes or additions to the data defining the route that the driver is to follow and/or details of cargo to be picked up and/or dropped at the origin, destination or intermediate points.

fffm-vehicle_number
This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function and contains the commercial vehicle's identification number to be entered into the vehicle's tag data store.

ffi-archive_analysis_payment_confirm
This data flow is sent from the financial institution to the Manage Archived Data function. It contains confirmation that a previously submitted request from an archived data user system for a data analysis product payment has been accepted and made.

ffi-archive_payment_confirm
This data flow is sent from the financial institution to the Manage Archived Data function. It contains confirmation that a previously submitted request from an archived data user system for an archived data product payment has been accepted and made.

ffi-bad_charges_payment_updates
This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains data about a toll transaction that was either attempted but did not work, or for which the subsequent payment transaction by the Financial Institution failed. The data is to be used within the function for checking against future toll transaction data.

ffi-bad_fare_payment_updates
This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains data about a transit fare transaction that was either attempted but did not work, or for which the subsequent payment transaction by the Financial Institution failed. The data is to be used within the function for checking against future fare transaction data.

ffi-bad_toll_payment_updates
This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains data about a parking lot charge transaction that was either attempted but did not work, or for which the subsequent payment transaction by the Financial Institution failed. The data is to be used within the function for checking against future parking lot charge transaction data.

ffi-confirm_charges_payment
This data flow is sent from the Financial Institution to the Provide Electronic Payment Services function and is set for a parking lot charge payment transaction not completed, or for a valid completion.

ffi-confirm_fare_payment
This data flow is sent from the Financial Institution to the Provide Electronic Payment Services function. It is used to confirm that a previous request for toll payments is being processed by the Financial Institution.

ffi-confirm_toll_payment
This data flow is sent from the Financial Institution to the Provide Electronic Payment Services function. It is used to confirm that a previous request for toll payments is being processed by the Financial Institution.

ffi-confirm_vmt_payment
This data flow is sent from the Financial Institution to the Provide Open Road Tolling function. It is used to confirm that a previous request for road use charge payments has been processed by the Financial Institution.

ffi-cv_payment_confirm
This data flow is sent from the financial institution to the Provide Electronic Payment Services function. It contains confirmation that a previously submitted request from a commercial fleet manager or commercial vehicle driver (acting in the role of fleet manager) for payment of electronic credentials and tax filing has been accepted and made.

ffi-driver_display_payment_confirm
This data flow is sent from the financial institution to the Provide Electronic Payment Services function. It contains confirmation that a previously submitted request from a traveler for payment for the update of the digitized map data used as the background for displays of traffic and travel information on a device onboard a vehicle has been accepted and made.

ffi-driver_map_payment_confirm
This data flow is sent from the financial institution to the Provide Electronic Payment Services function. It contains confirmation that a previously submitted request from a driver for payment for the update of the digitized map data used for on-line vehicle guidance has been accepted and made.

ffi-other_services_payment_confirm
This data flow is sent from the financial institution to the Provide Electronic Payment Services function. It contains confirmation that a previously submitted request from a traveler (including a user of the transit system) for payment for other (yellow pages) services has been accepted and made.

ffi-registration_payment_confirm
This data flow is sent from the financial institution to the Provide Electronic Payment Services function. It contains confirmation that a previously submitted request from a travel services provider for payment to register as a supplier of these services and have details of them made available to travelers (including users of the transit system) has been accepted and made.

ffi-traveler_display_payment_confirm
This data flow is sent from the financial institution to the Provide Electronic Payment Services function. It contains confirmation that a previously submitted request from a traveler for payment for the update of the digitized map data used as the background for displays of traffic and travel information on a traveler's personal device has been accepted and made.

ffi-traveler_map_payment_confirm
This data flow is sent from the financial institution to the Provide Electronic Payment Services function. It contains confirmation that a previously submitted request from a traveler for payment for the update of the navigable map database used for on-line personal guidance has been accepted and made.

ffi-traveler_other_services_payments_confirm
This data flow is sent from the financial institution to the Provide Electronic Payment Services function. It contains confirmation that a previously submitted request from a traveler for payment for other (yellow pages) services has been accepted and made.

ffi-traveler_rideshare_payment_confirm
This data flow is sent from the financial institution to the Provide Electronic Payment Services function. It contains confirmation that a previously submitted request from a traveler for payment for the provision of rideshare services has been accepted and made.

fgrs-government_data_report_request
This data flow from the Government Reporting Systems terminator contains the request for data from the archive that can be used to prepare the input to Government reporting systems. The data will allow user defined products to be generated for systems that include Highway Performance Monitoring System (HPMS), Truck Weight Study/VTRIS, National Bridge Inventory, Fatal Accident Reporting System (FARS), Highway Safety Information System (HSIS), Section 15 Transit Data, Motor Carrier Management Information System (MCMIS), Hazardous Materials Incident Reporting System, Grade Crossing Inventory System (GCIS), and Railroad Accident/Incident Reporting System (RAIRS; grade crossing portion).

field_broadcast_border_data
This data flow contains border crossing information to be broadcast to field equipment for distribution to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

border_data_for_broadcast

field_broadcast_event_information
This data flow contains event information to be broadcast to field equipment for distribution to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

event_information_for_broadcast

field_broadcast_incident_information
This data flow contains incident information to be broadcast to field equipment for distribution to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

incident_information_for_broadcast

field_broadcast_multimodal_data
This data flow contains multimodal travel services information to be broadcast to field equipment for distribution to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

multimodal_data_for_broadcast

field_broadcast_parking_data
This data flow contains parking information to be broadcast to field equipment for distribution to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

parking_data_for_broadcast

field_broadcast_price_data
This data flow contains price information to be broadcast to field equipment for distribution to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

price_data_for_broadcast

field_broadcast_traffic_data
This data flow contains traffic information to be broadcast to field equipment for distribution to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

traffic_data_for_broadcast

field_broadcast_transit_data
This data flow contains transit information to be broadcast to field equipment for distribution to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

transit_data_for_broadcast

field_broadcast_weather_data
This data flow contains weather information to be broadcast to field equipment for distribution to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

weather_data_for_broadcast

field_device_status
This data flow is used within the Manage Maintenance and Construction function to provide the operational status (state of the device, configuration, and fault data) of a set of field equipment, collected from the roadside and from other center processes. The equipment includes sensors (e.g., traffic flow, speed, wind, chemical, temperature, precipitation) and other field devices (e.g., signals, ramp meter controllers, CCTVs, vehicle traffic and environmental probe field equipment, in-vehicle signing equipment, automated roadway treatment systems, barriers, safeguard systems, and lighting systems). By monitoring this data flow, the receiving process can assess the health and current status of all field equipment and repair if deemed necessary. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ equip_identity
+ equip_device_status}

field_device_status_for_archive
This data flow is sent from the Manage Maintenance and Construction function to the Manage Archived Data function and contains information to be archived about the field equipment that require repairs. The equipment includes sensors (e.g., traffic flow, speed, wind, chemical, temperature, precipitation) and other field devices (e.g., signals, ramp meter controllers, CCTVs, traffic probe equipment, in-vehicle signing equipment, automated roadway treatment systems, barrier, and safeguard systems). It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ equip_identity
+ equip_device_status}

field_device_status_for_archive_attributes
This data flow is used to provide meta data included with maintenance and construction field device status data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of

the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

field_emergency_traveler_information

This data flow contains emergency information to be broadcast to field equipment for distribution to vehicles for in-vehicle display. This data flow consists of the following items each of which is defined in its own DDE:

care_facility_status_for_isp
+ incident_details_from_media
+ shelter_information_to_travelers
+ emergency_travel_service_update
+ traffic_incident_data_for_isp
+ other_isp_emergency_data
+ incident_information

field_equip_maint_status

This data flow provides a report for the Manage Traffic function of the operational status (state of the device, configuration, and fault data) and repair status of all field equipment monitored by the Manage Maintenance and Construction function. Field equipment includes sensors (e.g., traffic flow, speed, wind, chemical, temperature, precipitation) or other field device (e.g., signals, ramp meter controllers, CCTVs, traffic probe equipment, in-vehicle signing equipment, automated roadway treatment systems, barrier, and safeguard systems). By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ equip_identity
+ equip_device_status}

field_equip_maint_status_for_isp

This data flow provides a report for the Provide Driver and Traveler Services function of the operational status (state of the device, configuration, and fault data) and repair status of the short range communications field equipment operated by the function and monitored by the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ equip_identity
+ equip_device_status}

field_equip_status_for_m_and_c

This data flow is used to provide the operational status (state of the device, configuration, and fault data) of a set of field equipment, including sensors (e.g., traffic flow, speed, wind, chemical, temperature, precipitation) and other field devices (e.g., signals, ramp meter controllers, CCTVs, vehicle traffic and environmental probe field equipment, in-vehicle signing equipment, automated roadway treatment systems, barrier and safeguard systems, lighting systems, short range communications field equipment) to the center. By monitoring this data flow, the receiving process can assess the health and current status of all field equipment and repair if deemed necessary. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ equip_identity
+ equip_device_status}

field_equip_status_from_mcv_operator

This data flow consists of data based on inputs from maintenance and construction field personnel concerning the current status of

field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

field_equipment_status_from_isp

This data flow provides a report for the Manage Maintenance and Construction function of the operational status (state of the device, configuration, and fault data) of short range communications field equipment monitored or controlled by the Provide Driver and Traveler Services function. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. The receiving process will use this data to arrange for repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ equip_identity
+ equip_device_status}

field_equipment_status_from_traffic

This data flow provides a report for the Manage Maintenance and Construction function of the operational status (state of the device, configuration, and fault data) of all field equipment monitored or controlled by the Manage Traffic function. Field equipment includes sensors (e.g., traffic flow, speed, wind, chemical, temperature, precipitation) or other field device (e.g., signals, ramp meter controllers, CCTVs, traffic probe equipment, in-vehicle signing equipment, automated roadway treatment systems, barriers, safeguard systems, and lighting systems). By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. The receiving process will use this data to arrange for repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ equip_identity
+ equip_device_status}

field_evacuation_traveler_information

This data flow contains evacuation information to be broadcast to field equipment for distribution to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

evacuation_data_for_isp

field_management_station_fault_indication

This data flow indicates a fault has occurred in roadside field management station devices such as Signal System Master (SSM) and Signal System Local (SSL) equipment. A code may indicate the type of fault that has occurred depending on the type of device and its configuration. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_fault

field_management_station_status

This data flow is used to collect device status data and current operational state from roadside field management station devices such as Signal System Master (SSM) and Signal System Local (SSL) equipment. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_fault
+ roadside_device_status

field_processed_infrastructure_integrity_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing data from infrastructure monitoring sensors. It is analyzed and used to detect integrity problems on roadway infrastructure such as bridges, or on rail infrastructure such as tracks, etc. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ infrastructure_integrity_sensor_processed_data}

field_processed_intrusion_motion_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing intrusion or motion detection sensor data. It is analyzed and used to detect potential threats in secure areas typically away from travelers, such as bridges, tunnels, and other roadway infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ intrusion_motion_sensor_processed_data}

field_processed_object_detection_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing object detection sensor data. It is analyzed and used to detect potential threats in secure areas typically away from travelers, such as bridges, tunnels, and other roadway infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ object_sensor_processed_data}

field_processed_secure_area_audio

This data flow is used within the Manage Emergency Services function and contains the data produced by processing audio data from surveillance systems. It is analyzed and used to detect potential threats in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ surveillance_device_type_identity
+ secure_audio_data}

field_processed_secure_area_images

This data flow is used within the Manage Emergency Services function and contains the data produced by processing image data from systems such as surveillance closed circuit television (cctv). It is analyzed and used to detect potential threats in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ surveillance_device_type_identity
+ secure_video_image_data}

field_processed_threat_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing threat sensor data (e.g., thermal, acoustic, radiological, chemical). It is analyzed and used to detect potential threats in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ threat_sensor_processed_data}

field_processed_traveler_intrusion_motion_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing intrusion or motion detection sensor data. It is analyzed and used to detect potential threats in secure areas frequented by travelers during normal operational hours, but typically empty during off-hours, including transit stops, rest areas, travel information centers, etc. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ intrusion_motion_sensor_processed_data}

field_processed_traveler_object_detection_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing object detection sensor data. It is analyzed and used to detect potential threats in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ object_sensor_processed_data}

field_processed_traveler_secure_area_audio

This data flow is used within the Manage Emergency Services function and contains the data produced by processing audio data from surveillance systems. It is analyzed and used to detect potential threats in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. The data flow consists of the following data items each of which is defined in its own DDE:

list_size+ list_size{station_id
+ surveillance_device_type_identity
+ secure_audio_data}

field_processed_traveler_secure_area_images

This data flow is used within the Manage Emergency Services function and contains the data produced by processing image data from systems such as surveillance closed circuit television (cctv). It is analyzed and used to detect potential threats in secure

areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ surveillance_device_type_identity
+ secure_video_image_data}

field_processed_traveler_threat_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing threat sensor data (e.g., thermal, acoustic, radiological, chemical). It is analyzed and used to detect potential threats in secure areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ threat_sensor_processed_data}

field_processed_vehicle_object_detection_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing object detection sensor data. It is analyzed and used to detect potential threats on-board transit vehicles. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ object_sensor_processed_data}

field_processed_vehicle_secure_area_audio

This data flow is used within the Manage Emergency Services function and contains the data produced by processing audio data from surveillance systems. It is analyzed and used to detect potential threats on-board a transit vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_audio_data}

field_processed_vehicle_secure_area_images

This data flow is used within the Manage Emergency Services function and contains the data produced by processing image data from systems such as surveillance closed circuit television (cctv). It is analyzed and used to detect potential threats on-board a transit vehicle. The data consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image_data}

field_processed_vehicle_threat_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing threat sensor data (e.g., thermal, acoustic, radiological, chemical). It is analyzed and used to detect potential threats on-board transit vehicles. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ threat_sensor_processed_data}

field_to_vehicle_broadcast_border_data

This data flow contains border information broadcast from short range communications field equipment to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

border_data_for_broadcast

field_to_vehicle_broadcast_event_information

This data flow contains event information broadcast from short range communications field equipment to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

event_information_for_broadcast

field_to_vehicle_broadcast_incident_information

This data flow contains incident information broadcast from short range communications field equipment to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

incident_information_for_broadcast

field_to_vehicle_broadcast_multimodal_data

This data flow contains multimodal information broadcast from short range communications field equipment to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

multimodal_data_for_broadcast

field_to_vehicle_broadcast_parking_data
This data flow contains parking information broadcast from short range communications field equipment to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

parking_data_for_broadcast

field_to_vehicle_broadcast_price_data
This data flow contains current toll, parking, and transit prices and fares broadcast from short range communications field equipment to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

price_data_for_broadcast

field_to_vehicle_broadcast_traffic_data
This data flow contains traffic information broadcast from short range communications field equipment to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

traffic_data_for_broadcast

field_to_vehicle_broadcast_transit_data
This data flow contains transit information broadcast from short range communications field equipment to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

transit_data_for_broadcast

field_to_vehicle_broadcast_weather_data
This data flow contains weather information broadcast from short range communications field equipment to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

weather_data_for_broadcast

field_to_vehicle_emergency_traveler_information
This data flow contains emergency information broadcast from short range communications field equipment to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

care_facility_status_for_isp
+ incident_details_from_media
+ shelter_information_to_travelers
+ emergency_travel_service_update
+ traffic_incident_data_for_isp
+ other_isp_emergency_data
+ incident_information

field_to_vehicle_evacuation_traveler_information
This data flow contains evacuation information broadcast from short range communications field equipment to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

evacuation_data_for_isp

field_to_vehicle_transportation_system_status
This data flow contains information about the general status of the transportation system to be broadcast from short range communications field equipment to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

disaster_transportation_system_status
+ evacuation_transportation_system_status

field_to_vehicle_wide_area_alert_information
This data flow contains wide area alert information pertaining to a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be broadcast from short range communications field equipment to vehicles for in-vehicle display. This data flow consists of the following item which is defined in its own DDE:

wide_area_alert_notification_for_travelers

field_transportation_system_status
This data flow is used to communicate the general status of the transportation system to be broadcast to field equipment for distribution to vehicles for in-vehicle display. The data flow consists of the following data items each of which are defined in their own DDE:

disaster_transportation_system_status
+ evacuation_transportation_system_status

field_wide_area_alert_information

This data flow contains wide area alert information pertaining to a major emergency such as a natural or man-made disaster, civil emergency, severe weather, or child abduction to be broadcast to field equipment for distribution to vehicles for in-vehicle display. This data flow consists of the following data item which is defined in its own DDE:

wide_area_alert_notification_for_travelers

fifd-freight_depot_status_data

This data flow sent from the Intermodal Freight Depot terminator to the Manage Commercial Vehicles function contains data about the movement of freight by means that may include methods other than commercial vehicles, e.g. heavy rail, air, sea, river, etc. This data will include the status of the freight being shipped and include identification of the cargo, its current location, and other status information, to support end-to-end tracking.

fifd-intermodal_archive_data

This data flow from the Intermodal Freight Depot to the Manage Archived Data function contains a catalog and details of intermodal freight data that may be of interest to the archive data users systems that cannot be obtained directly from ITS functions. This data flow contains the following items each of which is defined in its own DDE:

intermodal_archive_catalog
+ intermodal_data_for_archive

fifd-intermodal_freight_event

This data flow sent from the Intermodal Freight Depot terminator to the Manage Traffic function contains data about the movement of freight by means that may include methods other than commercial vehicles, e.g. heavy rail, air, sea, river, etc. This movement of freight may become a possible traffic incident due to its impact on the traffic flowing on one or more lanes of a road or highway.

fifd-intermodal_freight_event_lane_information

This data flow sent from the Intermodal Freight Depot terminator to the Manage Traffic function contains data about the movement of freight by means that may include methods other than commercial vehicles, e.g. heavy rail, air, sea, river, etc. This movement of freight may require a dynamic lane management configuration to ease the traffic flowing on one or more lanes of a road or highway.

fifs-book_transportation

This data flow contains the information used to reserve freight transportation. It includes information about the shipper, consignee, commodities, pick-up and drop-off locations for freight equipment. It consists of the following items each of which is defined in its own DDE:

freight_equipment_number
+ freight_shipment_information

fifs-breach_response

This data flow represents an Intermodal Freight Shipper's response to a breach or tamper event of their freight equipment.

fifs-freight_shipper_status_data

This data flow sent from the Intermodal Freight Shipper terminator to the Manage Commercial Vehicles function contains data about the movement of freight by means that may include methods other than commercial vehicles, e.g. heavy rail, air, sea, river, etc. This data will include the status of the freight being shipped and include identification of the cargo, its current location, and other status information, to support end-to-end tracking.

fifs-trip_id_number

This data flow is sent from the intermodal freight shipper and contains the unique trip load number for a specific cross-border shipment. The data flow consists of the following data item each of which is defined in its own DDE:

cv_trip_identity

fifs-trip_identification_number

This data flow is sent from the intermodal freight shipper to the Manage Commercial Vehicle function and it contains the unique trip load number for a specific cross-border shipment. The data flow consists of the following data item each of which is defined in its own DDE:

cv_trip_identity

financial_request

This data flow is sent by the Manage Commercial Vehicles function to the Provide Electronic Payment Services function to request payment of permits and duties required for a commercial vehicle to complete its planned journey. It contains the following items each of which is defined in its own DDE:

cv_driver_enrollment_cost
+ duty_cost
+ permit_cost

financial_response

This data flow contains the response to the request for payment of permits and duties made by either the commercial fleet

manager or the commercial vehicle driver acting in the role of fleet manager. It consists of the following items each of which is defined in its own DDE:

cf_manager_credit_identity
+ cv_driver_credit_identity
+ authorization_code

fispo-archive_commands
This data flow is sent from the ISP system operator to the Provide Driver and Traveler Services function and contains data administration commands that the Provide Driver and Traveler Services function will use to control the archival of traveler information data by the Manage Archived Data function. These commands may include the data that is to be archived, how the data is processed, how the data is stored, data elements that are deleted, etc.

fispo-data_collection_parameters_request
This data flow is sent from the ISP operator to the Provide Driver and Traveler Services function and contains a request for output of the parameters used to govern traveler data collection processes.

fispo-data_collection_parameters_update
This data flow is sent from the ISP operator to the Provide Driver and Traveler Services function and contains an update of the parameters used to govern the traveler data collection processes.

fispo-request_data_collection_map_update
This data flow is sent by the ISP Operator to the Provide Driver and Traveler Services function and contains a request for an update to the store of digitized map data used by the traveler data collection process to display information to the ISP Operator. The request will be sent to the process that manages the store of this data and provides the interface with the map data supplier.

fispo-request_other_routes_selection_map_data_update
This data flow is sent from the ISP operator to the Provide Driver and Traveler Services function. It contains a request for an update of the digitized map data used by the process that selects non-vehicle or transit based routes for use in traveler's trip plans. The request will go to the process that manages the store of this data and provides the interface with the map data supplier.

fispo-request_route_selection_map_data_update
This data flow is sent from the ISP operator to the Provide Driver and Traveler Services function. It contains a request for an update of the digitized map data used by the process that selects vehicle based routes for use in traveler's trip plans and on-line drover guidance. The request will go to the process that manages the store of this data and provides the interface with the map data supplier.

fispo-request_traveler_service_map_update
This data flow is sent by the ISP Operator to the Provide Driver and Traveler Services function and contains a request for an update to the store of digitized map data used by the traveler services processes to display information to the ISP Operator. The request will be sent to the process that manages the store of this data and provides the interface with the map data supplier.

fispo-request_trip_planning_map_update
This data flow is sent by the ISP Operator to the Provide Driver and Traveler Services function and contains a request for an update to the store of digitized map data used by the traveler trip planning process to display information to the ISP Operator. The request will be sent to the process that manages the store of this data and provides the interface with the map data supplier.

fispo-route_selection_parameters_request
This data flow is sent from the ISP operator to the Provide Driver and Traveler Services function and contains a request for output of the parameters currently being used to govern the selection of routes by the trip planning processes.

fispo-route_selection_parameters_update
This data flow is sent from the ISP operator to the Provide Driver and Traveler Services function and contains an update of the parameters used to govern the selection of routes by the route selection process that provide both vehicle routes to travelers and on-line guidance to drivers.

fispo-trav_info_equip_status_request
This data flow is sent from the ISP system operator requesting details of the current operational status (state of the device, configuration, and fault data) of short range communications field equipment.

fispo-travel_services_operator_inputs
This data flow is sent from the ISP operator to the Provide Traveler Information Services function and contains data administration commands and configuration parameters that the Travel Services Provider function will use to control the interface to the travelers as well as the travel services providers. These inputs may include the types of information to be provided, the formats required, payment required for services, frequency of updates to the data, etc.

fispo-traveler_data_collection_request
This data flow is sent from the ISP Operator to the Provide Driver and Traveler Services function and contains a request for the output of the traveler data collection processes.

fispo-traveler_information_parameters_request
This data flow is sent from the ISP operator to the Provide Driver and Traveler Services function and contains a request for output of the parameters used to control traveler information dissemination processes.

fispo-traveler_information_parameters_update
This data flow is sent from the ISP operator to the Provide Driver and Traveler Services function and contains an update of the parameters used to control the dissemination of traveler information, including wide area information broadcast and interactive traveler data, traveler information alerts, yellow pages information, and emergency traveler information.

fispo-trip_planning_parameters_request
This data flow is sent from the ISP operator to the Provide Driver and Traveler Services function and contains a request for output of the parameters used to govern the selection of routes by the trip planning process.

fispo-trip_planning_parameters_update
This data flow is sent from the ISP operator to the Provide Driver and Traveler Services function and contains an update of the parameters used to govern the selection of routes by the trip planning processes.

fleet_activity_schedule
This data flow is used within the Manage Maintenance and Construction function and contains the work activity schedule for use by maintenance and construction vehicle fleet management. This flow includes the schedule, work activity to be performed, the site location, and any special instructions.

fleet_maintenance_availability
This data flow is used within the Manage Maintenance and Construction function and contains information on when the maintenance and construction vehicles will be available for preventive and corrective maintenance.

fleet_maintenance_record
This data flow is used within the Manage Maintenance and Construction function and includes the actual maintenance and repair record of each of the maintenance and construction vehicles in the fleet.

fleet_management_dispatch_input
This data flow is used within the Manage Maintenance and Construction function and includes information such as fleet activity schedules, dispatch orders, and other information needed by the maintenance and construction vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

dispatch_info_for_m_and_c_fleet
+ routing_parameters_for_m_and_c_fleet
+ fleet_activity_schedule

fleet_management_status
This data flow is used within the Manage Maintenance and Construction function and includes information such as fleet activity status for the scheduler, status collector, and maintenance and construction center personnel from the fleet manager. It consists of the following data items each of which is defined in its own DDE:

vehicle_fleet_status_for_personnel
+ vehicle_fleet_status_for_scheduler
+ m_and_c_fleet_manager_status

fleet_map_data
This data store is used within the Manage Commercial Vehicles function and contains digitized map data which will be used by the commercial vehicle fleet managers. It consists of the following data item which is defined in its own DDE:

map_data

fleet_resource_request
This data flow is used within the Manage Maintenance and Construction function and contains a request and information about the types of maintenance and construction vehicle resources needed. This includes those requests for resources from other agencies, such as emergency services and traffic management. The request will be evaluated by the maintenance and construction vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{mcv_vehicle_type
+ date
+ time}

fleet_resource_response
This data flow is used within the Manage Maintenance and Construction function and contains a list of the maintenance and construction fleet vehicles available for use. The data flow consists of the following data items each of which is defined in its own DDE:

fleet_vehicle_available

fleet_vehicle_available
This data flow is used within the Manage Maintenance and Construction function and contains a list of the maintenance and construction fleet vehicles available for use. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{vehicle_id_for_mcv
+ mcv_vehicle_type

+ mcv_equipment_configuration
+ vehicle_location_for_mcv
+ date
+ time}

fleet_vehicle_request_for_maint_needs

This data flow is used within the Manage Maintenance and Construction functions and contains the requests for assistance from the maintenance and construction vehicle fleet management. The data flow consists of the following data items each of which is defined in its own DDE:

fleet_resource_request
+ fleet_vehicle_request_for_winter_maint
+ fleet_vehicle_request_for_roadway_maint

fleet_vehicle_request_for_roadway_maint

This data flow is used within the Manage Maintenance and Construction function and contains a request and information about the types of maintenance and construction vehicle resources needed for routine roadway maintenance activities. The request will be evaluated by the maintenance and construction vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{mcv_vehicle_type
+ date
+ time}

fleet_vehicle_request_for_winter_maint

This data flow is used within the Manage Maintenance and Construction function and contains a request and information about the types of maintenance and construction vehicle resources needed for winter maintenance activities. The request will be evaluated by the maintenance and construction vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{mcv_vehicle_type
+ date
+ time}

fleet_vehicle_response_to_maint_needs

This data flow is used within the Manage Maintenance and Construction functions and contains the responses to requests for assistance from the maintenance and construction vehicle fleet management. The data flow consists of the following data items each of which is defined in its own DDE:

fleet_resource_response
+ fleet_vehicle_response_to_winter_maint
+ fleet_vehicle_response_to_roadway_maint

fleet_vehicle_response_to_roadway_maint

This data flow is used within the Manage Maintenance and Construction function and contains a list of the maintenance and construction fleet vehicles available for routine roadway maintenance use. The data flow consists of the following data items each of which is defined in its own DDE:

fleet_vehicle_available

fleet_vehicle_response_to_winter_maint

This data flow is used within the Manage Maintenance and Construction function and contains a list of the maintenance and construction fleet vehicles available for winter maintenance use. The data flow consists of the following data items each of which is defined in its own DDE:

fleet_vehicle_available

fmcas-m_and_c_administrative_information

This data flow is sent from the Maintenance and Construction Administrative Systems to the Manage Maintenance and Construction function. It provides input on administrative information, including requests and project requirements from contract administration, and other information that could affect scheduling of maintenance and construction activities.

fmcas-m_and_c_personnel_information

This data flow is sent from the Maintenance and Construction Administrative Systems to the Manage Maintenance and Construction function. It provides input on maintenance and construction personnel, including training qualifications and special certifications.

fmcas-m_and_c_regulations

This data flow is sent from the Maintenance and Construction Administrative Systems to the Manage Maintenance and Construction function. It provides input on regulations and rules, including restrictions that could affect scheduling of maintenance and construction activities.

fmcas-resupply_response

This data flow is sent from Maintenance and Construction Administrative Systems to the Manage Maintenance and Construction function, and contains the purchase request status for equipment and consumables resupply.

fmccp-alert_and_threats_for_field_personnel
This data flow is sent from the Maintenance and Construction Center Personnel to provide notification to field personnel of potential threats or a major emergency such as a natural or man-made disaster, civil emergency, or child abduction.

fmccp-archive_commands
This data flow is sent from the maintenance and construction center personnel to the Manage Maintenance and Construction function and contains data administration commands used to control the archival of data by the Manage Archived Data function. These commands may include the data that is to be archived, how the data is processed, how the data is stored, data elements that are deleted, etc.

fmccp-dispatch_and_routing_info
This data is used within the Manage Maintenance and Construction function and contains dispatch and routing parameters (destination, preferences, constraints, etc.) from the center personnel for use by the Maintenance and Construction vehicle fleet manager. The data flow consists of the following data items each of which is defined in its own DDE:

dispatch_info_for_m_and_c_fleet
+ routing_parameters_for_m_and_c_fleet

fmccp-emergency_plan_response
This data flow is sent from the Maintenance and Construction Center Personnel and is used to coordinate disaster response and recovery plans and evacuation plans with maintenance and construction.

fmccp-env_data_collection_inputs
This data flow contains inputs from the maintenance and construction center personnel defining how the environmental and weather data will be collected and formatted.

fmccp-env_data_processing_inputs
This data flow represents inputs made by the maintenance and construction center personnel to define the environmental data processing parameters.

fmccp-env_info_dissemination_inputs
This data flow represents inputs made by the maintenance and construction center personnel to define parameters for the distribution of environmental and road weather data to organizations outside the manage maintenance and construction function.

fmccp-env_sensor_control_inputs
This data flow from the Maintenance and Construction Center Personnel provides control commands for an environmental sensor, which is identified by its station id and sensor identity.

station_id
+ sensor_identity
+ environmental_sensor_control

fmccp-infrastructure_sensor_control
This data flow provides control commands from the Maintenance and Construction Center Personnel for an infrastructure monitoring sensor at the roadway. It consists of the following data item which is defined in its own DDE:

infrastructure_sensor_control_of_roadside_devices

fmccp-mdss_parameter_input
This data flow is sent from the Maintenance and Construction Center Personnel and contains data processing commands used to control the Maintenance Decision Support System function. These commands may include additional data inputs to the function, parameters guiding how the data is to be processed, assigned weightings to various input data, timeframe of data to be processed, how the data is to be distributed, etc.

fmccp-request_for_schedule
This data flow is sent from the Maintenance and Construction Center Personnel and contains a request for information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations.

fmccp-request_m_and_c_tracking_display_update
This data flow is sent by the Maintenance and Construction Center Personnel to request an update of the current digitized map data used as a background for maintenance and construction vehicle locations for tracking purposes. The map data produced as a result of this request will be provided by a specialist supplier.

fmccp-resource_response
This data flow is sent from the Maintenance and Construction Center Personnel and is used to respond to official requests for maintenance and construction resources. It contains a list of the resources granted. Although primarily used to respond to requests made on behalf of other agencies (such as emergency, traffic, etc.), it could also be used to assist in prioritizing the use of resources within maintenance and construction.

fmccp-vehicle_speed_sensor_control
This data flow provides control commands from Maintenance and Construction Center Personnel for vehicle speed sensors at the roadway.

fmccp-vehicle_systems_control

This data flow is sent by the Maintenance and Construction Center Personnel to provide control information to the systems on-board a maintenance and construction vehicle. It includes control data to support materials dispersion and other functions, depending upon the type of vehicle.

fmccp-wz_collection_and_distribution_parameters

This data flow is sent by the Maintenance and Construction Center Personnel and contains parameters to define how work zone data is collected, formatted, aggregated, or filtered for distribution within the maintenance and construction function as well as to various organizations outside of the function. It consists of the following data items each of which is defined in its own DDE:

work_zone_data_collection_parameters
+ work_zone_info_distribution_parameters

fmccp-wz_device_control

This data flow represents control actions for work zone devices performed by the Maintenance and Construction Center Personnel. These control action are generated to control work zone devices that are on a maintenance and construction vehicle, or traffic surveillance, automated barrier systems, or driver information devices that have been installed in work zones or maintenance areas. The devices controlled include closed circuit TV, dynamic message signs, highway advisory radio, barrier systems, intrusion detection devices, and intrusion alert devices. These actions may cover things such as device configuration or device reset. For the cctv the control flow also includes pan, tilt, and zoom plus other picture controls. This data flow consists of data from the following data items which are defined in their own DDE:

work_zone_device_operator_control
+ center_control_of_on_board_work_zone_devices

fmcfp-crew_movements

This data flow contains information about movements of maintenance and construction field personnel within a work zone area. The information could represent the physical presence of the personnel which is monitored by a sensor either at the roadside or on-board a maintenance and construction vehicle, or it could represent an actual communications of information from the personnel to the vehicle. In the latter case the information could include location and some form of personnel identifier that would allow transmitting of a warning to the specific personnel based upon detection of intrusion at a certain point within a work zone.

fmcfp-dispatch_response

This data flow is sent from the Maintenance and Construction Field Personnel to acknowledge that the vehicle has been dispatched and is on its way to the location identified in the dispatch request.

fmcfp-environmental_sensor_control

This data flow is sent from the Maintenance and Construction Field Personnel and provides control commands for an environmental sensor located on a maintenance and construction vehicle.

fmcfp-field_equip_repair_status

This data flow is input by the Maintenance and Construction Field Personnel to report the current status of field equipment.

fmcfp-field_equip_status_request

This data flow from the Maintenance and Construction Field Personnel contains a request for the operational status (state of the device, configuration, and fault status) of a particular sensor or device in the field.

fmcfp-m_and_c_activity_status

This data flow is sent from the Maintenance and Construction Field Personnel and contains current maintenance and construction status information such as work data, operator status, vehicle status, and crew status to the vehicle fleet manager.

fmcfp-vehicle_systems_control

This data flow is sent from the Maintenance and Construction Field Personnel and is used by the maintenance and construction vehicle operator to control the systems on-board the vehicle. It includes control data to support materials dispersion and other functions, depending upon the type of vehicle.

fmcfp-work_zone_status_inputs

This data flow contains inputs on work zone status provided by the maintenance and construction field personnel on-board a maintenance and construction vehicle. These inputs include field personnel status, vehicle status, and work activity status. This may also include request for activation of a barrier system (gates and other automated systems for roadway entry control).

fm-incident_details

This data flow contains data about an incident that has been reported by a member of the traveling public to the media by mechanisms that are outside of ITS, e.g. car phone. The data flow consists of the following items each of which is defined in its own DDE:

media_identity
+ incident_location
+ incident_start_time
+ incident_duration
+ incident_severity
+ incident_type

fm-incident_information

This data flow contains data about an incident that has been reported by a member of the traveling public to the media by mechanisms that are outside of ITS, e.g. car phone. The data flow consists of the following items each of which is defined in its own DDE:

media_identity
+ incident_location
+ incident_start_time
+ incident_duration
+ incident_severity
+ incident_type

fmmc-crossing_close_duration

This data flow is sent to the Provide Traffic Surveillance facility within the Manage Traffic function from multimodal crossings. It contains the time duration for which a crossing must close to vehicular traffic to permit the passage of the alternate flow, e.g. river traffic, aircraft, etc.

fmmc-crossing_close_time

This data flow is sent to the Provide Traffic Surveillance facility within the Manage Traffic function from multimodal crossings. It contains the time period before a crossing must close to vehicular traffic to permit the passage of the alternate flow, e.g. river traffic, aircraft, etc.

fmmc-crossing_closure_schedule

This data flow is sent to the Review and Classify Possible Incidents process within the Manage Traffic function from the multimodal crossing terminator. It contains the scheduled time and duration for which a crossing must close to vehicular traffic to permit the passage of the alternate flow, e.g., river traffic, aircraft, etc.

crossing_closure_schedule

fmmc-crossing_status_for_highways

This data flow allows multimodal crossing equipment to provide its operational status to control processes on the roadside. This can be as simple as a binary indication of status all the way to a full maintenance report.

fmmc-crossing_status_for_roads

This data flow allows multimodal crossing equipment to provide its operational status to control processes on the roadside. This can be as simple as a binary indication of status all the way to a full maintenance report.

fmmc-lane_management_inputs

This data flow is sent from multimodal crossings. It contains inputs to change the dynamic lane management configuration on the approach to a multimodal crossing.

fm-traveler_information

This data flow is sent from the media to the Provide Driver and Traveler Services function and contains information that the media has that might be of interest to travelers planning trips. This may include, but not be limited to such things as sports or other special events.

fmtsp-air_services

This data flow is sent from the multimodal transportation service provider to the Provide Driver and Traveler Services function and contains details of the regular and charter air services available to move travelers.

fmtsp-ferry_services

This data flow is sent from the multimodal transportation service provider to the Provide Driver and Traveler Services function and contains details of the sea and river ferry services available to move travelers.

fmtsp-individual_service_response

This data flow contains the portion of an individual service request that can be provided by a multimodal transportation service provider.

fmtsp-multimodal_archive_data

This data flow from the Multimodal Transportation Service Provider to the Manage Archived Data function contains a catalog and details of multimodal passenger data that may be of interest to the archive data users systems that cannot be obtained directly from ITS functions. This data flow contains the following items each of which is defined in its own DDE:

multimodal_archive_catalog
+ multimodal_data_for_archive

fmtsp-multimodal_service_confirmation

This data flow is sent by the Multimodal Transportation Service Provider to the Provide Driver and Traveler Services function to confirm that a traveler's request for an alternate mode service booking has been accepted. It consists of the following data item which is defined in its own DDE:

reservation_status
+ traveler_identity

fmtsp-non_motorized_services

This data flow from the multimodal transportation service provider to the Provide Driver and Traveler Services function contains details of the non-motorized transportation services available to move travelers. It consists of the following data items each of which is defined in its own DDE:

bike_route_information
+ walkway_information
+ skyway_information
+ multi_use_trail_information

fmtsp-rail_services

This data flow is sent from the multimodal transportation service provider to the Provide Driver and Traveler Services function and contains details of the heavy rail services (i.e. those which do not form part of a transit operation) available to move travelers.

fmtsp-transit_service_data

This data flow is sent from the multimodal transportation service provider to the Manage Transit function and contains details of the services provided by the multimodal transportation service providers. The data is intended for use by other processes in the calculation of new routes and services and the identification of transfer points [between the local transit service and an adjacent transit service] for the local regular transit operation. This data flow will enable two groups of services to be coordinated for the benefit of the traveler. This data flow contains the following item which is defined in its own DDE:

transit_transfer_cluster_list

fmtsp-transit_transfer_clusters

This data flow is sent from the multimodal transportation service provider to the Provide Driver and Traveler Services function and contains details on transit transfer clusters. This data flow consists of the following data item which is defined in its own DDE:

transit_transfer_cluster_list

fmup-demand_display_update

This data flow is sent from the map update provider to the Manage Demand facility within the Manage Traffic function. It contains the digitized map data for displays that can be used as background for the output of data on traffic and travel demand levels.

fmup-driver_display_update

This data flow is sent from the map update provider to the Provide Driver and Traveler Services function. It contains the digitized map data that can be used as background to displays of traffic, trip and travel information that are output to a device onboard a vehicle for use by travelers.

fmup-driver_display_update_cost

This data flow is sent from the map update provider to the Provide Driver and Traveler Services function and contains the cost for a new set of digitized map data to be used as the background to displays of traffic and travel information being output by a traveler's device onboard a vehicle.

fmup-emergency_display_update

This data flow is sent from the map update provider to the Manage Emergency Services function. It contains the digitized map data for displays that can be used as the background for the output of data on incidents and emergencies to the emergency system operator.

fmup-emergency_route_map_update

This data flow is sent from the map update provider to the Manage Emergency Services function. It contains the digitized map data for displays that can be used to plan routes for emergency vehicles.

fmup-fleet_map_update

This data flow is sent from the map update provider to the Manage Commercial Vehicles function and contains digitized map data to be used for route generation and as a background to displays of services requested by the commercial vehicle fleet manager.

fmup-incident_display_update

This data flow is sent from the map update provider to the Display and Update Incident Data facility within the Manage Traffic function. It contains the digitized map data for displays that can be used as background for the output of data on current incidents or planned events.

fmup-info_provider_map_data

This data flow is sent by the map update provider to the Provide Driver and Traveler Services function and contains a new copy of the digitized map data to be used by various processes to support traveler services.

fmup-m_and_c_display_update

This data flow is sent from the map update provider to the Manage Maintenance and Construction function. It contains the digitized map data for displays that can be used as the background for the output of data on maintenance and construction activities and vehicle locations for fleet management.

fmup-m_and_c_route_map_update

This data flow is sent from the map update provider to the Manage Maintenance and Construction function. It contains the digitized map data for displays that can be used to plan routes for maintenance and construction vehicles.

fmup-map_archive_data
This data flow from the Map Update Provider to the Manage Archived Data function contains a catalog and details of map data that may be of interest to the archive data users systems that cannot be obtained directly from ITS functions. This data flow contains the following items each of which is defined in its own DDE:

map_archive_catalog
+ map_data_for_archive

fmup-pollution_display_update
This data flow is sent from the map update provider to the Manage Emissions facility within the Manage Traffic function. It contains the digitized map data for displays that can be used as background for the output of data on the levels of various atmospheric pollutants.

fmup-traffic_display_update
This data flow is sent from the map update provider to the Display and Output Traffic Data facility within the Manage Traffic function. It contains the digitized map data for displays that can be used as background for the output of data on current or predicted traffic levels.

fmup-transit_map_update
This data flow is sent from the map update provider to the Manage Transit function and contains digitized map data to be used for route generation and as a background to displays of services requested by the transit operations personnel.

fmup-traveler_display_update
This data flow is sent from the map update provider to the Provide Driver and Traveler Services function. It contains the digitized map data that can be used as background to displays of traffic, trip and travel information that are output to a kiosk for use by travelers. The data will be different from that sent for output of similar displays at a personal device since the type of display is likely to be different (larger) in this case.

fmup-traveler_map_update
This data flow is sent from the map update provider to the Provide Driver and Traveler Services function and contains data for a new guidance map to be used by the on-line traveler guidance facility.

fmup-traveler_map_update_cost
This data flow is sent from the map update provider to the Provide Driver and Traveler Services function and contains the cost for a new navigable map database to be used by the traveler personal on-line guidance facility.

fmup-traveler_personal_display_update
This data flow is sent from the map update provider to the Provide Driver and Traveler Services function. It contains the digitized map data that can be used as background to displays of traffic, trip and travel information that are output to a personal device for use by travelers. The data will be different to that sent for output of similar displays at a kiosk since the type of display is likely to be different (smaller) in this case.

fmup-traveler_personal_display_update_cost
This data flow is sent from the map update provider to the Provide Driver and Traveler Services function and contains the cost for a new set of digitized map data to be used as the background to displays of traffic and travel information being output by a traveler's personal device.

fmup-vehicle_map_update
This data flow is sent from the map update provider to the Provide Driver and Traveler Services function and contains data for a new navigable map database to be used by the on-line vehicle guidance facility.

fmup-vehicle_map_update_cost
This data flow is sent from the map update provider to the Provide Driver and Traveler Services function and contains the cost for a new navigable map database to be used by the on-line vehicle guidance facility.

foa-archive_coordination_data
This data flow represents the data that is to be shared between different Archive systems. Information included on this interface may include the requests for data that is in the local archive. This data flow also represents the flow of data from the other archive to the local archive system.

focvas-accident_report
This data flow is sent from the other commercial vehicle administration system to the Manage Commercial Vehicles function and contains data about accidents involving commercial vehicles and their drivers.

focvas-border_clearance
This data flow is sent from other commercial vehicle administration system to the Manage Commercial Vehicle function. It contains the status of the movement of goods across international borders with corresponding trip identification numbers.

focvas-citation_info
This data flow is sent from the other commercial vehicle administration system to the Manage Commercial Vehicles function and contains data about issued citations.

focvas-credentials
This data flow is sent from other commercial vehicle administration system to the Manage Commercial Vehicle function and

contains full credentials information.

focvas-credentials_status
This data flow is sent from other commercial vehicle administration system to the Manage Commercial Vehicle function. It contains information regarding the status of credentials information including registration, licensing, check flags, and electronic screening enrollment data.

focvas-cv_driver_record
This data flow from another commercial vehicle administration agency contains a commercial vehicle drivers record. The data flow consists of the following items each of which is defined in its own DDE:

cv_driver_number
+ cv_driver_credentials
+ cv_driver_license_citations
+ cvo_citation_data
+ cvo_violation
+ cv_driver_identity_characteristic_key

focvas-data_table
This data flow is sent from the other commercial vehicle administration system to the Manage Commercial Vehicles function and contains data about required taxes and credential fees.

focvas-permit_coordination
This data flow contains information for coordination from one Commercial Vehicle Administration System to another for the purposes of issuing a commercial vehicle permit.

focvas-route_restrictions
This data flow contains road segments and areas (surrounded by road segments) that do not allow the transport of security sensitive hazmat cargoes or may indicate other restrictions (such as height or weight limits) as determined by a remote commercial vehicle administration agency. The data flow consists of the following items each of which is defined in its own DDE:

hazmat_route_restrictions
+ current_asset_restrictions

focvas-safety_inspection
This data flow is sent from the other commercial vehicle administration system to the Manage Commercial Vehicle function. It contains a report containing results of commercial vehicle safety inspections.

focvas-safety_status
This data flow is sent from the other commercial vehicle administration system to the Manage Commercial Vehicle function. It contains the status of safety information including safety ratings, inspection summaries, and violation summaries.

fods-other_data_source_archive_data
This data flow from Other Data Sources to the Manage Archived Data function contains a catalog and details of data that may be of interest to the archive data users systems that cannot be obtained directly from ITS functions or that users of the archive function have requested by imported into the archive. This data flow contains the following items each of which is defined in its own DDE:

other_data_source_catalog
+ user_defined_data_for_archive

foem-alert_notification_status
This data flow contains information indicating the status of the alert from the other emergency centers including the information systems that are being used to provide the alert notification.

foem-disaster_response_plan_coordination
This data flow is used is used to coordinate disaster response and recovery plans with other emergency management centers. It contains the response from other centers regarding the modified response plan. The data flow consists of the following data item which is defined in its own DDE:

emergency_input_for_disaster
+ oem_preplanned_disaster_response_plan
+ evacuation_status_for_disaster_response
+ emergency_center_identity

foem-emergency_resource_request
This flow contains a request from another emergency management center in supporting an incident, disaster, or other emergency. It provides a set of resources that the other emergency management center is planning to utilize and has been told are available for use. The data flow consists of the following data item which is defined in its own DDE:

em_resource_request
+ emergency_center_identity

foem-emergency_resource_response
This flow contains a response from another emergency management center for support of an incident, disaster, or other

emergency. The data flow consists of the following data item which is defined in its own DDE:

em_resource_response

foem-evacuation_information_from_other_em

This flow contains information regarding an evacuation occurring at other emergency management centers. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule
+ emergency_center_identity

foem-evacuation_plan_coordination

This data flow is used is used to coordinate evacuation plans with other emergency management centers. It contains the response from other centers regarding the modified evacuation plan. The data flow consists of the following data item which is defined in its own DDE:

emergency_center_identity
+ emergency_evacuation_data
+ evacuation_status_report
+ oem_preplanned_evacuation_plan

foem-evacuation_resource_request

This flow contains a request from another emergency management center to support an evacuation. It provides a set of resources that the other emergency management center is planning on utilizing and has been told are available for use. The data flow consists of the following data item which is defined in its own DDE:

em_resource_request
+ emergency_center_identity

foem-evacuation_resource_response

This flow contains a response from another emergency management center for support of an evacuation. The data flow consists of the following data item which is defined in its own DDE:

em_resource_response

foem-evacuation_status

This data flow contains a status of the response to an evacuation being performed by another emergency management center. It includes information regarding response to requests for assistance in an evacuation. In general it provides information regarding how well the other emergency management center is able to respond to the evacuation, and may be used to improve on the current evacuation plan.

foem-incident_command_information_coordination

This data flow contains information about the management of an incident in progress at another emergency management center. It provides the detailed status for an emergency response that is in progress and includes a detailed view of the assets which are deployed for the emergency, the current emergency status and any HAZMAT information not already sent. It contains the following data items each of which are defined in their own DDE:

incident_number
+ emergency_center_identity
+ incident_severity
+ incident_vehicle_status
+ incident_status
+ cf_hazmat_vehicle_information

foem-incident_details

This data flow is sent by the other emergency centers to the Manage Emergency Services function and contains data about an incident that is taking place outside the area of operation serviced by the local function. It consists of the following data items each of which is defined in its own DDE:

emergency_center_identity
+ incident_confidence_level
+ incident_location
+ incident_number
+ incident_report_source
+ incident_reported_time
+ incident_description
+ incident_start_time
+ incident_duration
+ incident_severity
+ incident_status
+ incident_traffic_impact
+ incident_type

foem-incident_response_coordination

This data flow supports coordination of an incident response between allied response agencies. It supports the coordination of response procedures, status and resources between agencies, and includes emergency response plans. It also supports the coordinated hand-off of responsibility for all or part of an emergency response. It consists of the following data items which are defined in their own DDEs:

incident_response_status
+ agency_incident_response_procedures
+ incident_resource_coordination
+ hand_off_coordination
+ staging_area
+ emergency_center_identity

foem-mayday_emergency_data

This data flow is sent by the other emergency centers to the Manage Emergency Services function. It contains information about an emergency that was reported by a Mayday system, verified by the Mayday service provider, and determined to require a response from a public safety agency or another authorized responder. It consists of the following data items, each of which is contained in its own DDE:

emergency_request_driver_details
+ emergency_request_vehicle_details
+ mayday_agency_ID
+ driver_status_update
+ vehicle_status_update

foem-request_for_emergency_support

This flow contains a request from other emergency management for emergency management to support an emergency event. The data flow consists of the following data items which are defined in their own DDE:

oem_disaster_response_plan
+ emergency_center_identity

foem-response_for_emergency_support

This flow contains a status response from other emergency management for emergency management. It informs emergency management of how other emergency management is responding to a request for supporting an emergency event. The data flow consists of the following data items which are defined in their own DDE:

oem_emergency_status_report
+ emergency_center_identity

foem-secure_area_sensor_data

This data flow is sent by other emergency centers to the Manage Emergency Services function and contains sensor data from secure areas outside the area of operation serviced by the local function. This flow includes raw data from threat sensors, objection detection sensors, intrusion and motion detection sensors, and infrastructure integrity sensors, as well as data produced by processing that sensor data. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ sensor_identity
+ emergency_center_identity
+ infrastructure_integrity_sensor_data_collected
+ infrastructure_integrity_sensor_processed_data
+ threat_sensor_data_collected
+ threat_sensor_processed_data
+ object_sensor_data_collected
+ object_sensor_processed_data
+ intrusion_motion_sensor_data_collected
+ intrusion_motion_sensor_processed_data}

foem-secure_area_surveillance

This data flow is sent by other emergency centers to the Manage Emergency Services function and contains surveillance data from secure areas outside the area of operation serviced by the local function. This flow includes high resolution video images, audio, and data produced by processing those images and audio. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image
+ secure_audio
+ secure_area_images
+ secure_video_image_data
+ secure_audio_data
+ emergency_center_identity}

foem-threat_analysis_results

This data flow is sent to the Manage Emergency Services function from other emergency centers and contains detailed results of threat analysis performed on data collected from secure areas outside the area serviced by the local function. The secure area may include those frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and other emergency centers. This data flow includes the analysis input parameters, the sources of the collected data and timestamps, as well as the final analysis results.

foem-threat_info

This data flow is sent to the Manage Emergency Services function from other emergency centers and contains information about threats detected in the transportation network outside the area of operation serviced by the local function. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ emergency_center_identity
+ threat_severity
+ geographical_area
+ threat_duration}

foem-transportation_system_status_for_disaster

This data flow consists of a report of the current status of the transportation system. The data flow consists of the following data item which is defined in its own DDE:

disaster_transportation_system_status
+ emergency_center_identity

foem-transportation_system_status_for_evacuation

This data flow consists of a report of the current status of the transportation system. The data flow consists of the following data item which is defined in its own DDE:

evacuation_transportation_system_status
+ emergency_center_identity

foem-verified_image_match

This data flow is sent by other emergency centers to the Manage Emergency Services function and contains the results of image matching analysis from secure areas outside the area of operation serviced by the local function. This flow indicates whether an image has matched an image in the database of known images. The image data is obtained from areas frequented by travelers, and from areas typically away from travelers. The data flow consists of the following data items each of which is defined in its own DDE:

timestamp
+ emergency_center_identity
+ station_id
+ transit_vehicle_location
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ image_match_confirmation
+ image_id

foem-wide_area_alert_notification

This data flow is sent to the Manage Emergency Services function from other emergency centers and contains information about wide area alert notifications detected in the notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be sent to the traffic operations personnel to be on the look out for certain conditions. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{alert_type
+ alert_severity
+ geographical_area
+ alert_duration
+ emergency_center_identity}

foisp-emergency_data

This data flow is used to provide emergency data and is sent from another ISP (e.g. a wholesaler of information). The data flow consists of the following items each of which is defined in its own DDE:

source_identity
+ wide_area_alert_notification_for_travelers
+ care_facility_status_for_isp
+ evacuation_data_for_isp
+ incident_information
+ shelter_information_to_travelers
+ disaster_transportation_system_status_for_isp
+ evacuation_transportation_system_status_for_isp

+ traffic_incident_data_for_isp

foisp-incident_data

This data flow contains information about events (or incidents) currently active or planned in the region of another ISP. It consists of the following data items each of which is defined in its own DDE:

source_identity
+ incident_description
+ incident_location
+ incident_severity
+ incident_traffic_impact
+ incident_type
+ planned_incident_response
+ planned_events_data

foisp-misc_traveler_information

This data flow is sent to the Provide Driver and Traveler Services function and contains information received from another Information Service Provider (e.g. a wholesaler of information). This includes a miscellaneous set of traveler information products including information from media outlets, parking operators, event promoters, weather services and yellow pages service providers. This data consists of the following items each of which is defined in its own DDE:

static_parking_information_for_isp
+ dynamic_parking_information_for_isp
+ parking_lot_availability
+ event_information_for_travelers
+ traveler_information_from_media
+ weather_observations
+ weather_forecasts
+ road_weather_info_for_isp
+ traffic_road_weather_data_for_isp
+ travel_services_data
+ env_sensor_data_for_isp_from_weather_svc
+ env_probe_data_from_vehicles

foisp-multimodal_data

This data flow is used to provide data on the current state of multimodal transportation operations and is sent from another ISP (e.g. a wholesaler of information). The data flow also contains travel service provider data. The data flow consists of the following items each of which is defined in its own DDE:

source_identity
+ air_services_details
+ ferry_services_details
+ rail_services_details
+ non_motorized_services_details
+ travel_services_data

foisp-parking_data

This data flow contains information from another Information Service Provider (e.g. a retailer of information) and contains static and dynamic parking information. This data consists of the following items each of which is defined in its own DDE:

source_identity
+ static_parking_information_for_isp
+ dynamic_parking_information_for_isp
+ parking_lot_availability

foisp-road_network_inventory

This data flow comprises data about each segment in the road (surface street) network and highway network and the way in which they fit together, i.e. which segment is joined to which, both upstream and downstream, plus identification of those links that interface from road to highway network. The data flow consists of the following data items each of which is defined in its own DDE:

source_identity
+ route_segment_details
+ link_data_for_guidance

foisp-road_weather_data

This data flow contains information about road weather conditions and road conditions for transmission from another ISP. The data flow consists of the following data items each of which is defined in its own DDE:

source_identity
+ weather_data_for_centers

foisp-traffic_data

This data flow contains a complete (or partial) set of the traffic data which has been created through fusion of available data sources and sent from another ISP (e.g. a wholesaler of information). This includes current, long term (historical) and predicted

link data as well as incident data. The data flow consists of the following items each of which is defined in its own DDE:

source_identity
+ traffic_data_for_centers

foisp-traffic_images

This data flow contains traffic image data sent from another ISP. It consists of the following data items each of which is defined in its own DDE:

source_identity
+ traffic_video_image_data

foisp-transit_data

This data flow is used to provide data on the current state of transit operations (regarding both incidents and transit vehicle schedule status) and is sent from another ISP (e.g. a wholesaler of information). The data flow consists of the following items each of which is defined in its own DDE:

source_identity
+ transit_running_data_for_advisory_output
+ transit_incident_data
+ traveler_transit_information_advisory_data

foisp-transit_fare_data

This data flow is used to provide data on the current transit prices and fares and is sent from another ISP (e.g. a wholesaler of information). The data flow consists of the following items each of which is defined in its own DDE:

source_identity
+ transit_fare_data

fomcm-env_sensor_data

This data flow provides outputs from a set of environment sensors that are monitored by another maintenance and construction organization. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output}

fomcm-m_and_c_plan_feedback

This data flow is used by the Manage Maintenance and Construction function to receive feedback regarding proposed work plans from other maintenance and construction facilities whose areas of operation are outside those of the local facility. It contains comments and suggested changes to proposed maintenance and construction work plan schedules and activities. This information will be used to influence the work schedule to minimize impact to other system operations and the transportation system.

fomcm-m_and_c_work_plans

This data flow is used by the Manage Maintenance and Construction function to receive data from other maintenance and construction facilities whose areas of operation are outside those of the local facility. It contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans

fomcm-resource_coordination_data

This data flow represents information about resources that is to be shared between maintenance and construction facilities located in different geographic areas. Included in this data flow are requests for use and availability of those resources.

fomcm-road_weather_info

This data flow contains environmental and road weather information that has been formatted for distribution from one maintenance and construction organization to another. The data may be filtered or aggregated prior to this formatting. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

fomcm-roadway_maint_status

This data flow is used by the Manage Maintenance and Construction function to receive data from other maintenance and construction facilities whose areas of operation are outside those of the local facility. It contains information summarizing the current roadway maintenance activities. This also includes maintenance fleet operations affecting the road network such as winter maintenance (snow plow schedules and status). The data flow consists of the following data item which is defined in its own DDE:

current_roadway_maintenance_status

fomcm-work_zone_images

This data flow contains analog or digitized video images of a work zone that are provided to the Manage Maintenance and Construction function from another maintenance and construction agency.

fomcm-work_zone_info

This data flow contains a summary of maintenance and construction work zone activities affecting the road network including the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. This information also includes work zone resources availability and status.

fomcv-crew_movements

This data flow is sent from another maintenance and construction vehicle and contains the location of a maintenance and construction field personnel within a work zone area and some form of personnel identifier that would allow transmitting of a warning to the specific personnel based upon detection of intrusion at a certain point within a work zone. The data flow may also contain a maintenance and construction vehicle identifier to allow transmission of warnings to a specific vehicle.

fomcv-env_conditions

This data flow contains environmental sensor data collected on-board another maintenance and construction vehicle. The data may represent the actual sensor output, or may be a filtered or processed version for display to the Maintenance and Construction Field Personnel. It consists of the following data items each of which is defined in its own DDE:

sensor_identity
+ environment_sensor_output

fomcv-vehicle_operational_data

This data flow is received from other vehicles to the Manage Maintenance and Construction function and contains information about the maintenance and construction activity performed by the vehicle. Operational data includes the operational state of the maintenance equipment (e.g., blade up/down, spreader pattern) and a record of the actual work performed. It is used to coordinate efforts between maintenance and construction vehicles. It consists of the following data items each of which is defined in its own DDE:

vehicle_id_for_mcv
+ operational_data_for_mcv

fomcv-work_zone_intrusion_alert_on_board

This data flow contains a time stamped indication that a work zone intrusion alert has been generated by a device on-board a maintenance and construction vehicle. The data flow could also identify the form in which the alert was given (e.g. audible warning, visual warning, or in-vehicle warning).

fomcv-work_zone_intrusion_detection_on_board

This data flow contains the time stamped output of an on-board intrusion detection device indicating that an intrusion has been detected.

fomcv-work_zone_intrusion_warning_to_crew

This data flow contains a warning sent from another maintenance and construction vehicle to a receiving maintenance and construction vehicle that an intrusion into the work zone has been detected. The data flow may contain the identity of the sending vehicle, the identity of the receiving vehicle, the location of the intrusion, and the identity of the maintenance and construction field personnel that are at risk due to the location and nature of the intrusion.

fopa-toll_charges_reconciliation_data

This data is sent from the Other Payment Administration terminator to the Process Electronic Toll Payment function to support the reconciliation of toll charges between agencies.

fopa-toll_pricing_data

This data is sent from the Other Payment Administration terminator to the Process Electronic Toll Payment function to share toll pricing data between separately managed toll agencies.

fopa-vmt_coordination_data

This data flow is sent from the Other Payment Administration terminator to the Provide Open Road Tolling function to share road use charging information between separately managed payment administration agencies. This data flow includes Vehicle Miles Traveled (VMT) road use charging policies, specific vehicle travel history in another jurisdiction so that the other agency can charge the user, and funds to be transferred based on travel by a specific vehicle in another jurisdiction that was collected by the other agency.

fop-parking_coordination_data

This data flow is sent by the other parking management center to the Manage Parking Lot state function and contains data from the other parking centers about services which have an interface into the area covered by services from the local center.

formatted_archive_catalog

This data flow contains a catalog of the data that has been imported and formatted by the Get Archive Data function. This catalog is based on the catalog information sent from the various sources of ITS or non-ITS data. This data flow consists of the following items each of which is defined in its own DDE:

traffic_archive_catalog
+ parking_archive_catalog
+ emissions_archive_catalog
+ cv_archive_catalog
+ transit_archive_catalog

+ em_archive_catalog
+ traveler_archive_catalog
+ toll_archive_catalog
+ multimodal_archive_catalog
+ weather_and_env_data_archive_catalog
+ intermodal_archive_catalog
+ m_and_c_archive_catalog
+ map_archive_catalog
+ other_data_source_catalog
+ traffic_probe_data_archive_catalog
+ env_sensor_data_archive_catalog

formatted_archive_data

This data flow contains the data as received from ITS and non-ITS sources and formatted for storage by the Manage Archive function. This data flow consists of the following items each of which is defined in its own DDE:

formatted_roadside_data
+ formatted_traffic_data
+ formatted_parking_data
+ formatted_emissions_data
+ formatted_cv_data
+ formatted_transit_data
+ formatted_em_data
+ formatted_traveler_data
+ formatted_toll_data
+ formatted_multimodal_data
+ formatted_weather_data
+ formatted_intermodal_data
+ formatted_border_data
+ formatted_m_and_c_data
+ formatted_map_data
+ formatted_user_defined_data
+ formatted_traffic_probe_data
+ formatted_env_sensor_data

formatted_archive_data_attributes

This data flow within the Manage Archived Data function contains the meta data to describe the data that was formatted for archival by the Get Archive Data function. This could include updates to the meta data attributes of individual types of data to describe any reformatting done to the data as it was imported, any cleansing activities, or any other methods applied to the incoming data such as aggregation or summarization. This data flow consists of the following items each of which is defined in its own DDE:

formatted_roadside_data_attributes
+ formatted_traffic_data_attributes
+ formatted_parking_data_attributes
+ formatted_emissions_data_attributes
+ formatted_cv_data_attributes
+ formatted_transit_data_attributes
+ formatted_em_data_attributes
+ formatted_traveler_data_attributes
+ formatted_toll_data_attributes
+ formatted_multimodal_data_attributes
+ formatted_weather_data_attributes
+ formatted_intermodal_data_attributes
+ formatted_m_and_c_data_attributes
+ formatted_map_data_attributes
+ formatted_user_defined_data_attributes
+ formatted_traffic_probe_data_attributes
+ formatted_env_sensor_data_attributes

formatted_border_data

This data flow contains border crossing and trade related information that may be of interest to archive data users systems. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow contains the following items each of which is defined in its own DDE:

border_data

formatted_cv_data

This data flow contains details of commercial vehicle credentials, roadside and border crossing data for the archive. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow is made up of the following items each of which is defined in its own DDE:

cv_daily_logs
+ cv_credentials_enrollment_data

formatted_cv_data_attributes

This data flow contains the meta data that describes the details of commercial vehicle credentials, roadside and border crossing data for the archive. The meta data attributes may have been altered and updated by the Get Archive Data function. This data flow is made up of the following items each of which is defined in its own DDE:

cv_daily_logs_attributes
+ cv_credentials_enrollment_attributes

formatted_em_data

This data flow contains details of emergency operational data for release to the data archive. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow is made up of the following items each of which is defined in its own DDE:

em_operational_data

formatted_em_data_attributes

This data flow contains the meta data to describe the emergency operational data for release to the data archive. The meta data attributes may have been altered and updated by the Get Archive Data function. This data flow is made up of the following items each of which is defined in its own DDE:

em_operational_data_attributes

formatted_emissions_data

This data flow consists of detailed information on emissions and pollution data. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow consists of the following items each of which is defined in its own DDE:

archive_pollution_state_data
+ archive_pollution_reference_data
+ archive_pollution_data
+ archive_emissions_reference_data
+ archive_emissions_state_data
+ archive_emissions_data

formatted_emissions_data_attributes

This data flow contains the meta data that describes the emissions and pollution data. The meta data attributes may have been altered and updated by the Get Archive Data function. This data flow consists of the following items each of which is defined in its own DDE:

archive_pollution_state_data_attributes
+ archive_pollution_reference_data_attributes
+ archive_pollution_data_attributes
+ archive_emissions_reference_data_attributes
+ archive_emissions_data_attributes
+ archive_emissions_state_data_attributes

formatted_env_sensor_data

This data flow is detailed information from environmental sensors. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow consists the following items each of which is defined in its own DDE:

list_size
+ list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_quality_checks}

formatted_env_sensor_data_attributes

This data flow contains the meta data that describes the environmental sensor data being archived. The meta data attributes may have been altered and updated by the Get Archived Data function. It contains the following data items each of which is defined in its own DDE:

environment_sensor_attributes

formatted_intermodal_data

This data flow contains intermodal freight information that may be of interest to archive data users systems. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow contains the following items each of which is defined in its own DDE:

intermodal_data

formatted_intermodal_data_attributes

This data flow contains meta data that describes the intermodal freight information that may be of interest to archive data users

systems. The meta data attributes may have been altered and updated by the Get Archive Data function. This data flow contains the following items each of which is defined in its own DDE:

intermodal_data_attributes

formatted_m_and_c_data

This data flow contains maintenance and construction information that may be of interest to archive data users. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow contains the following items each of which is defined in its own DDE:

m_and_c_activity_status_for_archive
+ m_and_c_activity_schedule_for_archive
+ m_and_c_roadway_maint_needs_for_archive
+ m_and_c_maint_resource_needs_for_archive
+ m_and_c_winter_maint_needs_for_archive
+ work_zone_data_for_archive
+ field_device_status_for_archive
+ auto_treatment_system_status_for_archive
+ infrastructure_data_for_archive

formatted_m_and_c_data_attributes

This data flow contains meta data that describes the construction and maintenance information that may be of interest to archive data users systems. The meta data attributes may have been altered and updated by the Get Archive Data function. This data flow contains the following items each of which is defined in its own DDE:

m_and_c_activity_status_for_archive_attributes
+ m_and_c_activity_schedule_for_archive_attributes
+ m_and_c_roadway_maint_needs_for_archive_attributes
+ m_and_c_maint_resource_needs_for_archive_attributes
+ m_and_c_winter_maint_needs_for_archive_attributes
+ work_zone_data_for_archive_attributes
+ field_device_status_for_archive_attributes
+ auto_treatment_system_status_for_archive_attributes
+ infrastructure_data_for_archive_attributes

formatted_map_data

This data flow contains map information that may be of interest to archived data users. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow contains the following items each of which is defined in its own DDE:

imported_map_data_for_archive

formatted_map_data_attributes

This data flow contains the meta data that describes the map information that may be of interest to archive data users systems. The meta data attributes may have been altered and updated by the Get Archive Data function. This data flow contains the following items each of which is defined in its own DDE:

imported_map_data_attributes

formatted_multimodal_data

This data flow contains multimodal passenger information that may be of interest to archive data users systems. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow contains the following items each of which is defined in its own DDE:

multimodal_data

formatted_multimodal_data_attributes

This data flow contains the meta data about the multimodal passenger information that may be of interest to archive data users systems. The meta data attributes may have been altered and updated by the Get Archive Data function. This data flow contains the following items each of which is defined in its own DDE:

multimodal_data_attributes

formatted_parking_data

This data flow is detailed information on parking data, such as parking availability and parking lot charges. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow consists the following items each of which is defined in its own DDE:

parking_charge_response_for_archive
+ parking_lot_state_for_archive
+ parking_lot_static_data_for_archive

formatted_parking_data_attributes

This data flow contains the meta data that describes the information on parking data, such as parking availability and parking lot

charges. The meta data attributes may have been altered and updated by the Get Archive Data function. This data flow consists the following items each of which is defined in its own DDE:

parking_charge_attributes
+ parking_lot_state_attributes
+ parking_lot_static_data_attributes

formatted_roadside_data
This data flow contains the detailed data collected from the roadside. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow consists the following items each of which is defined in its own DDE:

traffic_sensor_data_archive_input
+ environmental_sensor_data_archive_input

formatted_roadside_data_attributes
This data flow contains the meta data that describes the data collected from the roadside. The meta data attributes may have been altered and updated by the Get Archive Data function. This data flow consists the following items each of which is defined in its own DDE:

traffic_sensor_data_attributes
+ environmental_sensor_data_attributes

formatted_toll_data
This data flow contains detailed data on the operations of the electronic toll collection process. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow consists the following items each of which is defined in its own DDE:

toll_operational_data
+ toll_prices_for_archive

formatted_toll_data_attributes
This data flow contains the meta data that describes the data on the operations of the electronic toll collection process. The meta data attributes may have been altered and updated by the Get Archive Data function. This data flow consists the following items each of which is defined in its own DDE:

toll_operational_data_attributes
+ toll_prices_for_archive_attributes

formatted_traffic_data
This data flow is detailed data on the traffic flowing in the road network. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow consists the following items each of which is defined in its own DDE:

traffic_data_for_deployment
+ static_data_for_archive
+ avo_operational_data

formatted_traffic_data_attributes
This data flow contains the meta data that describes the data on the traffic flowing in the road network. The meta data attributes may have been altered and updated by the Get Archive Data function. This data flow consists the following items each of which is defined in its own DDE:

traffic_deployment_data_attributes
+ static_data_attributes
+ avo_operational_data_attributes

formatted_traffic_probe_data
This data flow contains vehicle traffic probe data obtained from field equipment. For each vehicle, the data includes unique vehicle identifiers, the vehicle's speed, heading and snapshots of recent events including starts and stops, speed changes, and other information that can be used to estimate traffic conditions. This data flow consists of the following items each of which is defined in its own DDE:

vehicle_traffic_probe_data
+ vehicle_guidance_probe_data

formatted_traffic_probe_data_attributes
This data flow contains the meta data that describes the vehicle traffic probe data being archived. The meta data attributes may have been altered and updated by the Get Archived Data function. It contains the following data items each of which is defined in its own DDE:

vehicle_traffic_probe_data_attributes

formatted_transit_data

This data flow contains details of transit operational data for release to the data archive. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow is made up of the following items each of which is defined in its own DDE:

transit_operational_data_for_archive
+ transit_services_for_deployment
+ traveler_payments_transactions
+ transit_fare_transactions
+ transit_route_assign_for_archive
+ bad_transit_collected_fare_payment
+ bad_transit_roadside_fare_payment
+ bad_transit_vehicle_fare_payment
+ transit_vehicle_operator_info_for_archive
+ transit_incident_info_for_archive
+ transit_emergency_data_for_archive
+ transit_technician_info
+ transit_vehicle_maintenance_info
+ paratransit_service_data_for_archive
+ transit_vehicle_data_for_archive

formatted_transit_data_attributes

This data flow contains the meta data to describe the transit operational data for release to the data archive. The meta data attributes may have been altered and updated by the Get Archive Data function. This data flow is made up of the following items each of which is defined in its own DDE:

transit_operational_data_attributes

formatted_traveler_data

This data flow contains details of all of the service requests and confirmations input by the traveler via a personal device or kiosk, aggregated vehicle traffic probe data, parking lot data, trip requests and traveler rideshare requests and data, other-routes data, road network use data, and traveler payment transaction data. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. It contains the following data items each of which is defined in its own DDE:

trip_planning_requests_for_archive
+ trip_planning_confirmations_for_archive
+ traffic_probe_aggregated_data_for_archive
+ traveler_info_requests_for_archive
+ emergency_info_requests_for_archive
+ travel_services_requests_for_archive
+ vehicle_route_guidance_data_for_archive
+ traveler_route_guidance_data_for_archive
+ current_other_routes_use_for_archive

formatted_traveler_data_attributes

This data flow contains the meta data that describes the driver and traveler information being archived. The meta data attributes may have been altered and updated by the Get Archived Data function. It contains the following data items each of which is defined in its own DDE:

trip_planning_requests_attributes
+ trip_planning_confirmations_attributes
+ traffic_probe_aggregated_data_attributes
+ traveler_info_requests_attributes
+ emergency_info_requests_attributes
+ travel_services_requests_attributes
+ vehicle_route_guidance_data_attributes
+ traveler_route_guidance_data_attributes
+ current_other_routes_use_attributes

formatted_user_defined_data

This data flow contains information from Other Data Sources that may be of interest to archive data users systems. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow contains the following items each of which is defined in its own DDE:

user_defined_data

formatted_user_defined_data_attributes

This data flow contains meta data that describes the information imported from Other Data Sources. The meta data attributes may have been altered and updated by the Get Archive Data function. This data flow contains the following items each of which is defined in its own DDE:

user_defined_data_attributes

formatted_weather_data

This data flow contains weather information that may be of interest to archive data users systems. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow contains the following items each of which is defined in its own DDE:

weather_data

formatted_weather_data_attributes

This data flow contains meta data that describes the weather information that may be of interest to archive data users systems. The meta data attributes may have been altered and updated by the Get Archive Data function. This data flow contains the following items each of which is defined in its own DDE:

weather_data_attributes

fors-device_control

This data flow is received from the Other RS terminator and contains control information for a device (e.g., ramp meter controller). It is used for coordination between peer indicators or for information transfer between devices functioning in a hierarchical arrangement. In this case, the Other RS terminator represents the indicator from which control commands are being sent. This data flow consists of the following item which is defined in its own DDE:

f_other_rw_fc_control_to_fc

fors-device_status

This data flow is received from the Other RS terminator and contains status and fault information for an indicator (e.g., ramp meter controller, intersection controller). The data flow can contain the actual state of operation of the indicators. It is used for coordination between peer indicators or for information transfer between devices functioning in a hierarchical arrangement. It may also be used to exchange information between a Signal System Master (SSM) and Signal System Local (SSL) equipment. In this case, the Other RS terminator represents the indicator from which status is being sent. This data flow consists of the following items each of which is defined in its own DDE:

f_other_rw_ic_status_to_ic
+ f_other_rw_fc_status_to_fc

fors-roadway_info_data_from_devices

This data flow is received from the Other RS terminator and contains data from a device (automated road treatment function, barrier system, or safeguard system) for display on a roadway information device. The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. In this case, the Other RS terminator represents the automated device. This data flow consists of the following items each of which is defined in its own DDE:

f_other_rw_dms_auto_treat_data_from_roadway
+ f_other_rw_dms_barrier_activated_from_roadway
+ f_other_rw_dms_safeguard_activated_from_roadway
+ f_other_rw_traffic_metering_to_dms
+ f_other_rw_traffic_metering_data_to_signage
+ vehicle_emissions_message
+ f_other_rw_roadway_warning_to_dms
+ f_other_rw_roadway_warning_to_signage

fors-roadway_info_data_from_sensors

This data flow is received from the Other RS terminator and contains sensor data from a roadside sensor (environmental, speed warning, or individual speed sensor) for transmission/display using roadway information devices. The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. In this case, the Other RS terminator represents the sensor. This data flow consists of the following items each of which is defined in its own DDE:

f_other_rw_env_sensor_data_to_dms
+ f_other_rw_individual_vehicle_speed_to_dms
+ f_other_rw_individual_vehicle_speed_to_signage
+ f_other_rw_speed_warning_to_dms
+ f_other_rw_speed_warning_to_signage
+ f_other_rw_variable_speed_to_dms
+ f_other_rw_variable_speed_to_signage

fors-sensor_control

This data flow is received from the Other RS terminator and provides control commands for a roadside sensor (environmental or traffic). In this case, the Other RS terminator represents a roadside or freeway indicator (e.g., intersection controller, ramp meter controller), or an automated road treatment device that sends the sensor control commands. This data flow consists of the following items each of which is defined in its own DDE:

f_other_rw_env_sensor_control_by_auto_treat_device
+ f_other_rw_ic_control_to_traffic_sensor
+ f_other_rw_fc_control_to_traffic_sensor

fors-sensor_data

This data flow is received from the Other RS terminator and provides data from a roadside sensor (environmental, traffic, or work zone intrusion). In this case, the Other RS terminator represents the sensor from which a roadside or freeway indicator (e.g., intersection controller, ramp meter controller), or an automated road treatment device, or a work zone intrusion alert device, or in-vehicle signage transmitter receives the sensor data. This data flow consists of the following items each of which is defined in its own DDE:

f_other_rw_env_sensor_data_for_auto_treat_device
+ f_other_rw_traffic_sensor_data_to_ic
+ f_other_rw_traffic_sensor_data_to_fc
+ f_other_rw_work_zone_intrusion_detection
+ f_other_rw_pedestrian_sensor_data
+ f_other_rw_road_user_protection_warning

fors-sensor_status

This data flow is received from the Other RS terminator and provides status and fault data from a roadside traffic sensor. In this case, the Other RS terminator represents the sensor from which a roadside or freeway indicator (e.g., intersection controller, ramp meter controller) receives the sensor status. This data flow consists of the following items each of which is defined in its own DDE:

f_other_rw_traffic_sensor_status_to_ic
+ f_other_rw_traffic_sensor_status_to_fc

fors-signal_control

This data flow is received from another roadside device and contains control information for a traffic signal controller. It can contain the actual data from which instructions to the driver and traveler can be produced by traffic signals in the geographic and/or jurisdictional area(s) served by the function. It is used for sharing of control between devices functioning in a hierarchical arrangement. It may also be used to exchange information between a Signal System Master (SSM) and Signal System Local (SSL) equipment.

fors-signal_fault

This data flow is sent from the Other RS terminator and contains fault indicators for a traffic signal controller. It is used to support coordination between peer devices or for information transfer between devices functioning in a hierarchical arrangement.

fors-signal_status

This data flow is received from the Other RS terminator and contains status information for a traffic signal controller. The data flow can contain the actual state of operation of the indicators. It is used for coordination between peer devices or for information transfer between devices functioning in a hierarchical arrangement. It may also be used to exchange information between a Signal System Master (SSM) and Signal System Local (SSL) equipment.

fota-toll_charges_reconciliation_data

This data is sent from the Other Toll Administration terminator to the Process Electronic Toll Payment function to support the reconciliation of toll charges between agencies.

fota-toll_pricing_data

This data is sent from the Other Toll Administration terminator to the Process Electronic Toll Payment function to share toll pricing data between separately managed toll agencies.

fotm-current_event_data

This data flow contains information about events (or incidents) currently active in the region of the Other TM. It consists of the following data items each of which is defined in its own DDE:

incident_description
+ incident_location
+ incident_severity
+ incident_traffic_impact
+ incident_type
+ planned_incident_response

fotm-device_control_request

This data flow is received by the Manage Traffic function from traffic centers outside the local jurisdiction, and contains requests by the other center for remote control of field equipment belonging to the local center.

fotm-device_data

This data flow contains data from field devices managed by the Other TM.

fotm-device_inventory

This data flow contains device inventory information from devices managed by the Other TM. The device inventory includes the type of device, location, and features of the device.

fotm-device_status

This data flow contains status information from devices managed by the Other TM. It consists of the following data item which is defined in its own DDE:

device_status_from_traffic

fotm-disaster_network_status

This data flow contains information regarding a current non-local disaster. It consists of the following data item which is defined in its own DDE:

disaster_traffic_information_from_other_traffic_management

fotm-evacuation_information

This data flow contains information regarding a current non-local evacuation. It consists of the following data item which is defined in its own DDE:

evacuation_traffic_information_from_other_traffic_management

fotm-network_status_for_evacuation

This data flow contains information about the status of the road network (what assets are available and what are not) while an evacuation is ongoing.

fotm-permit_coordination_for_traffic

This data flow contains information used in the coordination of permits for special travel requirements which involve different agencies and jurisdictions. This information provides the Manage Traffic function with schedule and route information to prepare special travel and traffic controls for the transport of non-typical loads or roadway activities that require permits. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time
+ permit_type
+ permit_route_plan
+ permit_traffic_controls

fotm-planned_event_data

This data flow contains information about planned events (or incidents) in the region of the Other TM. It consists of the following data item which is defined in its own DDE:

planned_events_data

fotm-road_network_inventory_and_status

This data flow comprises data about each segment in the road (surface street) network and highway network and the way in which they fit together, i.e. which segment is joined to which, both upstream and downstream, plus identification of those links that interface from road to highway network. This data element also contains the data for the status of lanes on each link which is stored by a another TMC. The lane on the link can either be closed or open. The data flow consists of the following data items each of which is defined in its own DDE:

highway_network
+ road_network
+ link_status

fotm-road_weather_data

This data flow contains information about road weather conditions and road conditions obtained from another Traffic Management System. The data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

fotm-roadway_detours_and_closures

This data flow contains information about road closures, detours, routes, and control strategies established by another traffic management center that might influence local traffic patterns and demand on facilities.

fotm-traffic_control_strategy_for_disaster_or_evacuation

This data flow contains information regarding traffic control strategies that have been put into place in response to disaster or evacuations. It consists of the following data items each of which is defined in its own DDE:

disaster_traffic_control_response_from_other_traffic_management
+ evacuation_control_response_from_other_traffic_management

fotm-traffic_data

This data flow contains data showing the current traffic flow conditions on roads (surface streets), freeways and ramps under the jurisdiction of another Traffic Management System. It also includes flows in high occupancy vehicle (hov) lanes from the same area. The data flow consists of the following data items each of which is defined in its own DDE:

processed_traffic_data
+ traffic_flow_state

fotm-traffic_image_data

This data flow contains traffic image data from the Other TM. It consists of the following data item which is defined in its own DDE:

traffic_video_image_data

fotrm-individual_service_response
This data flow contains the portion of an individual service request that can be provided by an Other Transit Management system.

fotrm-transit_fare_data_coordination
This data flow is sent by Other Transit Management centers to the Manage Transit function and contains data from the other transit center about services which have an interface into the area covered by services from the local center. The data flow consists of the following data items each of which is defined in its own DDE:

fare_reconciliation
+ trmc_identity
+ transit_fare_data

fotrm-transit_service_data
This data flow is sent by Other Transit Management centers to the Manage Transit function and contains data from the other transit center about services which have an interface into the area covered by services from the local center. The data flow consists of the following data items each of which is defined in its own DDE:

trmc_identity
+ traffic_incident_data_for_transit
+ transit_transfer_point_list
+ transit_transfer_cluster_list
+ transit_vehicle_deviations_details
+ transit_vehicle_passenger_data

fotrm-transit_traveler_information
This data flow is sent by Other Transit Management centers to the Manage Transit function and contains data from the other transit center about services which have an interface into the area covered by services from the local center. The data flow consists of the following data items each of which is defined in its own DDE:

trmc_identity
+ transit_services_for_advisory_data
+ transit_vehicle_advisory_eta

fov-platoon_data_from_other_vehicle
This data flow is used to receive data from other vehicles in a platoon when in platoon following mode of vehicle operation. This includes information about the status of the sending vehicle, its profile for acceleration and deceleration, and the headway to be used by a vehicle over its entire speed range. This data flow will assist the receiving vehicle in both maintaining the current platoon formation and making changes because (for example) the sending vehicle is leaving the platoon.

fov-safety_msg_data_from_other_vehicles
This data flow is used to receive status and safety data broadcast from surrounding vehicles. This data may include basic characteristics of the vehicle along with information about the location and direction of the vehicle as well as information about the status of systems on-board the vehicle such as the brakes, steering, throttle, and lighting systems.

fov-safety_status_from_other_vehicle
This data flow is received into the Provide Vehicle Monitoring and Control function from nearby vehicles. It contains the operational status of the vehicle for including its approaching speed, direction, impending turning movements.

fpa-alert_notification_input
This data flow from the Payment Administrator to the Process Electronic Payment function contains inputs concerning a wide-area alert that has been issued and whether to should be passed on to the toll operators in the field. This information could include specific criteria for toll operators to be on the look out for as they perform their collection activities.

fpa-archive_commands
This data flow is sent from the payment administrator to the Provide Electronic Payment Services function and contains data administration commands that control the archival of toll and payment data for the Manage Archived Data function. These commands may include the data that is to be archived, how the data is processed, how the data is stored, data elements that are deleted, etc.

fpa-confirm_advanced_toll
This data flow is sent from the payment administrator to the Provide Electronic Payment Services function and confirms an advanced toll, either an individual request or confirms receipt of the report of requests for advanced toll payments.

fpa-toll_price_changes_response
This data flow is sent to the Provide Electronic Payment Services function by the payment administrator. It contains the response to a previous request for a change to the current toll pricing structure in response to demand or traffic conditions.

fpa-toll_price_data
This data flow is sent from the payment administrator to the Provide Electronic Payment Services function and contains updates to the current toll prices.

fpa-vmt_parameters
This data flow is sent from the Payment Administrator to the Provide Open Road Tolling function and contains parameters to be used in management of road use charging administration.

fpa-vmt_price_data
This data flow is sent from the payment administrator to the Provide Open Road Tolling function and contains current charging policies for roadways and other facilities that a vehicle might use.

fphs-public_health_evacuation
Specific medical information concerning the nature of biological emergency response to support the management of an evacuation.

fphs-public_health_response
Specific medical information concerning the nature of biological emergency and recommendations on how best to respond.

fpo-archive_commands
This data flow is sent from the parking operator to the Manage Traffic function and contains data administration commands to control the parking data archive. These commands may include the data that is to be archived, how the data is processed, how the data is stored, data elements that are deleted, etc.

fpo-confirm_advanced_parking_payment
This data flow is sent from the parking operator to the Provide Electronic Payment Services function to confirm that an advanced payment of a parking lot charge will be accepted.

fpo-current_lot_state
This data flow is sent from a parking lot system to the Manage Traffic function and contains the current parking lot state as provided by the operator. This state may be defined as closed, almost full, full, or spaces.

fpo-lot_occupancy
This data flow is sent from a parking lot operator to the Manage Traffic function and contains the current parking lot occupancy in terms of the number of vehicles present as provided by the operator.

fpo-parking_lot_charge_change_response
This data flow is sent to the Provide Electronic Payment Services function by the parking operator. It contains the response to a previous request for a change to the current parking lot charging structure.

fpo-parking_lot_data
This data flow is sent from the parking operator to the Provide Electronic Payment Services function. It contains input of parking lot price and capacity data.

fpo-parking_lot_hours_of_operation
This data flow is sent from the Parking Operator terminator and contains data on the hours of operation of parking lots. This data is used in transactions requiring electronic payment of parking lot services, as well as for a traveler making a parking lot

fpo-transaction_reports_request
This data flow is sent form the parking operator to the Provide Electronic Payment Services function and is a request for the report on parking lot transactions. The request must include the time period and identity of the lots which the report must cover.

fp-pedestrian_data
This data flow is used within the Manage Traffic function. It contains analog data about the presence of pedestrians waiting to cross, or approaching the crossing points of roads and highways from which pedestrian surveillance data such as pedestrian demand, numbers of pedestrians, etc. can be obtained by sensors within ITS.

fp-pedestrian_images
This data flow is used within the Manage Traffic function. It contains visual information (analog data) about pedestrians waiting to cross, or approaching the crossing points, or in the crosswalk of roads and highways from which pedestrian surveillance data can be obtained by image processors within ITS.

fp-pedestrian_presence
This data flow from the Pedestrians terminator represents the analog information used to automatically sense a pedestrian or non-vehicular road user approaching the edge of a roadway.

fre-environmental_conditions
This data flow is sent from the roadside environment and contains analog data. This data is used by sensors within the ITS functions to determine environmental roadside conditions such as air temperature, wind speed, humidity and precipitation, fog, ice, snow, rain, etc. that are affecting the road and highway network served by the function.

fre-environmental_conditions_at_roadway
This data flow represents the environmental roadside conditions such as air temperature, wind speed, humidity and precipitation, fog, ice, snow, rain, etc. that are affecting the road and highway network served by the function. These conditions are sensed by environmental sensors on board a maintenance and construction vehicle.

freeway_control_request_for_detours
This data flow contains request for freeway controls to provide detour routes in support of emergency operations during a disaster. The request could be for a long term or short term detour. It might also include a request to remove vehicle restrictions

such as HOV on facilities.

freeway_control_response_for_detours
This data flow contains response from freeway management controls on the status of setting up and providing detour routes in support of emergency operations during a disaster.

freight_alarm
This data flow contains the details of security related incidents involving freight equipment. These include notifications of significant route deviations and breach or tamper events. The data flow consists of the following data items each of which is defined in its own DDE:

freight_equipment_id
+ freight_equipment_location
+ incident_type
+ time
+ date

freight_assignment_data
This data flow contains the freight equipment number assigned to a specific route. The data flow consists of the following data items each of which is defined in its own DDE:

freight_equipment_number
+ cv_route_number

freight_booking_information
This data flow contains the information supplied when freight transportation is booked. It includes information about the shipper, consignee, commodities, pick-up and drop-off locations for freight equipment. For border crossing applications, a trip identification number is provided. It consists of the following items each of which is defined in its own DDE:

cv_trip_identity
+ freight_shipment_information
+ freight_equipment_number

freight_breach
This data flow contains information regarding a breach or tamper event of freight equipment. It identifies the type of breach and the current location of freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

freight_equipment_id
+ freight_breach_data
+ location_identity
+ time

freight_breach_data
This data flow contains information regarding a breach or tamper event of freight equipment. It identifies the type of breach and location within the freight equipment the breach or tampering has occurred.

freight_breach_for_rs
This data flow contains breach or tamper event data for freight equipment attached to a commercial vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

freight_breach

freight_breach_warning
This data flow contains breach or tamper event data for freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

freight_breach

freight_cargo_data
This data describes the type and quantity of cargo, planned delivery schedule and route restrictions. It contains data from which the following can be determined: cargo type - solid, liquid, powder, flammable liquid, livestock, etc., hazmat cargo - details of the HAZMAT designation (if any) for the cargo, cargo weight - the actual weight of the cargo including its packaging, i.e. what weight the vehicle is actually carrying, cargo packaging - the type of container in which the cargo is held, e.g. closed ISO container, tank, open container, refrigerated container, etc.

freight_equipment_id
This data flow contains the identification information for freight equipment.

freight_equipment_info
This data flow contains container, trailer or chassis information in support of freight equipment operations, maintenance, and integrity. The data flow consists of the following data items each of which is defined in its own DDE:

freight_operations
+ freight_maintenance

+ freight_equipment_location
+ freight_integrity
+ cargo_data
+ cargo_safety_status

freight_equipment_location
This data flow contains location data from freight equipment used by many processes. The data flow consists of the following data item that is defined in its own DDE:

freight_equipment_id
+ location_identity

freight_equipment_maint_status
This data flow contains the repair status of freight equipment at the repair facility.

freight_equipment_maintenance_availability
This data flow contains information on when freight equipment will be available for preventive and corrective maintenance.

freight_equipment_number
This data flow contains the character code that represents the owner's code, equipment category identifier, and serial number.

freight_fleet_status
This data flow provides a fleet-freight manager the status of a fleet of freight equipment, including its availability, maintenance schedule and current location.

freight_incident_alert
This data flow contains information about potential security incidents involving freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

freight_breach
+ freight_route_deviation_warning

freight_incident_response
This data flow contains a freight manager's response to a security incident involving freight equipment.

freight_info_for_inspection
This data flow is used to provide roadside facilities with the identity information stored on board a commercial vehicle concerning the freight being carried. This data flow consists of the following item which is defined in its own DDE:

freight_equipment_id

freight_integrity
This data flow contains freight equipment data from which a breach or tamper incident can be evaluated. The data flow consists of the following data items each of which is defined in its own DDE:

freight_equipment_id
+ freight_integrity_data

freight_integrity_data
This data flow contains freight equipment data from which a breach or tamper incident can be evaluated. This includes door position (open/close), radiation levels, light sensor readings (internal to the freight equipment), temperature readings, seal status, biological and chemical sensor readings, etc.

freight_integrity_monitoring_parameters
This data flow contains parameters against which a freight equipment's integrity data is monitored. The parameters setup the acceptable limits which if exceeded, may indicate a breach or tamper event.

freight_location_information
This data flow contains location data from freight equipment used to support dispatching of freight equipment. The data flow consists of the following data item that is defined in its own DDE:

freight_equipment_location

freight_maint_data
This data store contains the maintenance data for freight equipment used to plan preventive and corrective maintenance. The data flow consists of the following data items which are defined in its own DDE:

freight_equipment_id
+ freight_maintenance_data

freight_maintenance
This data flow contains the data regarding wear items on a specific piece of freight equipment, such as brakes, tires, etc., from which maintenance plans can be determined. The data flow consists of the following data items each of which is defined in its own DDE:

freight_equipment_id
+ freight_maintenance_data

freight_maintenance_data
This data flow contains data regarding wear items on freight equipment, such as brakes, tires, etc., from which maintenance plans are developed.

freight_manager_updates
This data flow contains instructions from a freight manager in support of managing a fleet of freight equipment. This includes allocating freight equipment, coordinating maintenance activities and coordinating routes.

freight_operational_data
This data flow contains information regarding freight equipment availability to support freight fleet dispatching. It provides information regarding load status (i.e. trailer empty), chassis status (i.e. chassis bare) and other indicators which determine the availability of freight equipment.

freight_operations
This data flow contains information regarding the availability for a specific piece of freight equipment. It provides information regarding load status (i.e. trailer empty), chassis status (i.e. chassis bare) and other indicators which determine the availability of freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

freight_equipment_id
+ freight_operational_data

freight_route_deviation_warning
This data flow contains route monitoring data for freight equipment that has deviated beyond the acceptable limits of its intended route. The data flow consists of the following data item each of which is defined in its own DDE:

freight_equipment_id
+ freight_equipment_location
+ freight_route_monitoring_parameters
+ time
+ date

freight_route_monitoring_parameters
This data flow contains parameters against which a freight equipment's route is monitored. The parameters setup acceptable route deviation limits, which can be influenced by the type of vehicle (i.e. HAZMAT) and its current location (i.e. urban vs. rural). It consists of the following data item which is defined in its own DDE:

route_monitoring_parameters

freight_routes
This data store contains the route plan for freight equipment. The data flow consists of the following data item which is defined in its own DDE:

cvo_route_for_freight

freight_shipment_information
This data flow contains the data used to book freight transportation. This includes information about the shipper, consignee, commodities, pick-up and drop-off locations, and unique reference numbers.

fre-physical_conditions
This data flow is sent from the roadside environment to the Manage Traffic function and contains analog data. This data is used by sensors within the function to determine the physical conditions such as fog, ice, snow, rain, etc. that are affecting the road and highway network served by the function.

fre-roadside_data
This data flow is sent by the roadway environment to the Provide Vehicle Monitoring and Control function. It contains analog data from which sensors on-board the vehicle can determine the physical conditions such as fog, ice, snow, rain, etc. at the road or highway.

fre-roadway_characteristics
This data flow is sent from the roadside environment to the Manage Traffic function and contains information relating to the physical roadway characteristics. These include the roadway geometry, and type of roadway surface (paved, gravel, etc.).

fre-roadway_characteristics_for_mcv
This data flow is sent from the roadside environment to the Manage Maintenance and Construction function and contains information relating to the physical roadway characteristics. These include the roadway geometry, and type of roadway surface (paved, gravel, etc.).

fre-roadway_infrastructure_characteristics
This data flow is sent from the roadside environment to the Manage Maintenance and Construction function and contains information relating to the physical characteristics of the roadway infrastructure, including pavement, bridges, culverts, signs, etc.

fro-disaster_response_plan_coordination

This data flow is used is used to coordinate disaster response and recovery plans with rail operations. It contains the response from rail regarding the modified response and recovery plan. The data flow consists of the following data item which is defined in its own DDE:

rail_disaster_response_plan

fro-evacuation_plan_coordination

This data flow is used is used to coordinate evacuation plans with rail operations. It contains the response from rail regarding the modified preplanned evacuation plan. The data flow consists of the following data item which is defined in its own DDE:

rail_evacuation_plan

fro-incident_notification

This data flow is used by a rail operator to notify an ITS traffic management function that a rail incident has been detected that will impact vehicle traffic. This could be an HRI collision incident or merely a stalled train that is blocking an HRI. It could also be a rail incident NOT associated with an HRI, but that may cause abnormal traffic patterns, or blockage of a non-crossing or grade separated roadway.

From_Alerting_and_Advisory_Systems

This data is sent from the Alerting and Advisory Systems terminator and contains the following data item which is defined in its own DDE:

faas-threat_support_data
+ faas-image_search_data
+ faas-confirm_image_match
+ faas-wide_area_alert_notifications_and_advisories
+ faas-alerts_and_advisories_for_traffic
+ faas-alerts_and_advisories_for_transit
+ faas-alerts_and_advisories_for_maint
+ faas-alerts_and_advisories_for_threat_analysis
+ faas-alerts_and_advisories_for_cvo
+ faas-alerts_and_advisories_for_freight
+ faas-alerts_and_advisories_for_cvas
+ faas-alerts_and_advisories_for_screening
+ faas-alerts_and_advisories_for_inspection

fro-m_and_c_plan_feedback_from_rail

This data flow is sent from the Rail Operations to the Manage Maintenance and Construction function. It contains comments and suggested changes to proposed maintenance and construction work plan schedules and activities. This information will be used to influence the work schedule to minimize impact to other system operations and the transportation system.

From_Archived_Data_Administrator

This data is sent from the Archive Data Administrator terminator to the Manage Archived Data function. It contains the following data items each of which is defined in its own DDE:

fada-archive_administration_requests
+ fada-data_collection_device_control

From_Archived_Data_User_Systems

This data is sent from the Archived Data User Systems terminator to the Manage Archived Data function. It contains the following data item which is defined in its own DDE:

fadu-archive_data_product_request
+ fadu-archive_analysis_request
+ fadu-on_demand_archive_request

From_Asset_Management

This data flow is sent from Asset Management and contains inventory and repair needs information about transportation assets such as pavement, bridges, signs, etc. for use in scheduling asset maintenance and placing restrictions on asset usage (such as height, width, or weight). Inventory updates from Asset Management are also included in this flow for archival. It consists of the following data items each of which is defined in its own DDE:

fam-asset_maint_and_repair_needs
+ fam-asset_inventory
+ fam-asset_restrictions
+ fam-asset_archive_data
+ fam-asset_damage

From_Basic_Commercial_Vehicle

This data flow is sent from the non-ITS functions on a commercial vehicle to the Manage Commercial Vehicles functions. It contains data that has been collected on-board a commercial vehicle for processing by sensors before being used within the functions. The data flow consists of the following items each of which is defined in its own DDE:

fbcv-brake_condition
+ fbcv-distance_traveled
+ fbcv-driver_safety_status
+ fbcv-driver_status
+ fbcv-vehicle_characteristics
+ fbcv-vehicle_identification
+ fbcv-vehicle_identity
+ fbcv-vehicle_safety_status
+ fbcv-vehicle_security_status
+ fbcv-weight

From_Basic_MC_Vehicle

This data flow is sent from the non-ITS systems on-board a maintenance and construction vehicle and it contains analog data that can be monitored by on-board vehicle sensors to provide a number of digital data readings for use elsewhere within ITS. This data includes information about treatment materials stored on-board, vehicle diagnostics and operating status data about the mileage, brake system, engine wear, tire wear, and the like. It consists of the following data items each of which is defined in its own DDE:

fbmcv-basic_mcv_measures
+ fbmcv-materials_status

From_Basic_Transit_Vehicle

This data flow is sent from the non-ITS functions on a transit vehicle to the Manage Transit function and contains data that has been collected on-board the vehicle, such as vehicle type and availability, maintenance record, and current vehicle performance data. It consists of the following data items each of which is defined in its own DDE:

fbtv-availability
+ fbtv-vehicle_maintenance_data
+ fbtv-vehicle_trip_data
+ fbtv-transit_vehicle_disable_acknowledge

From_Basic_Vehicle

This data flow is sent to the Provide Vehicle Control and Monitoring functions. It contains analog data that can be monitored by on-board vehicle sensors to provide a number of digital data readings for use elsewhere within ITS. The data applies to any type of vehicle, i.e. it is not particular to one type such as commercial vehicles, transit vehicles, etc. It consists of the following data items each of which is defined in its own DDE:

fbv-brake_servo_response
+ fbv-crash_sensor_data
+ fbv-diagnostics_data
+ fbv-driver_safety_status
+ fbv-steering_servo_response
+ fbv-throttle_servo_response
+ fbv-vehicle_attitude_data
+ fbv-vehicle_condition
+ fbv-vehicle_headway
+ fbv-vehicle_identity
+ fbv-vehicle_lane_position
+ fbv-vehicle_motion_data
+ fbv-vehicle_on_avo_lane
+ fbv-vehicle_occupants
+ fbv-vehicle_proximity_data
+ fbv-vehicle_safety_status
+ fbv-vehicle_security_status
+ fbv-vehicle_speed

From_Border_Insp_Admin

This data flow is sent from the Border Inspection Administration systems terminator to the Manage Commercial Vehicles and Manage Archived Data functions. It contains support data about vehicles, carriers, cargo, and drivers for the movement of vehicles across borders. The data flow consists of the following data items each of which is defined in its own DDE:

fbia-border_archive_data
+ fbia-border_client_request
+ fbia-border_prearrival_notice
+ fbia-border_arrival_notice
+ fbia-fleet_border_clearance_status
+ fbia-fleet_client_identification
+ fbia-fleet_expedited_clearance_response
+ fbia-fleet_expedited_clearance_status
+ fbia-fleet_manifest_receipt

From_Border_Insp_Systems

This data flow is sent from the Border Inspection Systems terminator to the Manage Commercial Vehicles, Manage Emergency Services, Manage Traffic, and the Provide Driver and Traveler Services functions. It contains support data about vehicles, carriers, cargo, and drivers associated with the movement of vehicles across borders. The data flow consists of the following data

items each of which is defined in its own DDE:

fbis-border_arrival_notice
+ fbis-border_crossing_inspection_results
+ fbis-border_vehicle_pass_pull_in
+ fbis-border_vehicle_clearance_notice
+ fbis-border_incident_information
+ fbis-traveler_border_status
+ fbis-border_traffic_incident
+ fbis-border_remote_video_control
+ fbis-border_lane_management
+ fbis-lane_management_inputs
+ fbis-current_border_wait_time_for_traffic
+ fbis-actual_border_wait_time_for_traffic
+ fbis-predicted_border_wait_time_for_traffic
+ fbis-current_border_wait_time_for_info
+ fbis-actual_border_wait_time_for_info
+ fbis-predicted_border_wait_time_for_info
+ fbis-border_wait_times_archive

From_Care_Facility

This data flow is sent from the Care Facility Terminator to the Manage Emergency Services Function. It contains information about the location, specialized services, quality of care, waiting time, number of rooms available, and emergency room status of hospitals or emergency care providers. The information could also come from a third party quality of care provider. The data contained in each of these flows will enable the provide emergency route function to route emergency vehicles to the closest emergency care provider with the services required for patients. The data flow consists of the following data item which is defined in its own DDE:

fcf-care_facility_status_response
+ fcf-care_facility_vehicle_status_response
+ fcf-care_facility_status_for_isp
+ fcf-care_facility_status_response_for_disaster

From_Commercial_Vehicle_Driver

This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and contains data (or a request for data) that has been inputted by a driver. It consists of the following data items each of which is defined in its own DDE:

fcvd-activity_request
+ fcvd-carrier_number
+ fcvd-driver_characteristics
+ fcvd-driver_data_input
+ fcvd-driver_general_message
+ fcvd-driver_input_type
+ fcvd-driver_response
+ fcvd-enrollment_payment_request
+ fcvd-enrollment_request
+ fcvd-driver_number
+ fcvd-other_data_input
+ fcvd-request_routing_instructions
+ fcvd-request_tag_data_output
+ fcvd-route_data
+ fcvd-route_request
+ fcvd-trip_identification_number
+ fcvd-vehicle_number

From_CVO_Information_Requestor

This data flow is from the Commercial Vehicle Operations (CVO) Information Requestor terminator. It consists of the following item which is defined in its own DDE:

fcvoir-record_review_request

From_CVO_Inspector

This data flow is sent from the commercial vehicle roadside facility inspector to the Manage Commercial Vehicles function. It consists of the following data items each of which is defined in its own DDE:

fci-credentials_data_request
+ fci-inspection_data_input
+ fci-pull-in_action
+ fci-request_log_report
+ fci-safety_data_request
+ fci-start_inspection

From_DMV

This data flow is sent from the Department of Motor Vehicles to several processes within the ITS function in response to a request

for vehicle registration data to be used in calculating tolls, verification of emissions compliance, etc. This data flow consists of the following data items each of which is defined by its own DDE:

fdmv-parking_lot_violation_state_identity
+ fdmv-parking_lot_violation_vehicle_registration
+ fdmv-toll_violation_state_identity
+ fdmv-toll_violation_vehicle_registration
+ fdmv-traffic_violation_state_identity
+ fdmv-traffic_violation_vehicle_registration
+ fdmv-emissions_violation_state_identity
+ fdmv-emissions_violation_vehicle_registration
+ fdmv-vmt_vehicle_registration
+ fdmv-vehicle_state_id
+ fdmv-cv_violation_vehicle_registration

From_Driver

This data flow is sent from the Driver and contains driver commands to the vehicle, including automatic vehicle control, and requests for in-vehicle services such as guidance, financial transaction requests, emergency requests, and requests for travel advisory information. It consists of the following data items each of which is defined in its own DDE:

fd-activate_vehicle_control
+ fd-driver_vehicle_access_request
+ fd-emergency_request
+ fd-guidance_data
+ fd-guidance_map_update_request
+ fd-guidance_request
+ fd-guidance_route_accepted
+ fd-other_services_parking_request
+ fd-other_services_toll_request
+ fd-request_advisory_information
+ fd-vehicle_display_configuration_override
+ fd-vehicle_display_configuration_setting

From_Driver_Identification_Card

This data flow is sent from the driver identification card terminator to the Manage Commercial Vehicles function. It consists of the following data items each of which is defined in its own DDE:

fdic-driver_info
+ fdic-driver_information
+ fdic-driver_cred_info

From_Emergency_Personnel

This data flow is sent from the emergency personnel to the Manage Emergency Services function. It consists of the following data items each of which is defined in its own DDE:

fep-emergency_dispatch_acknowledge
+ fep-incident_status
+ fep-incident_command_inputs
+ fep-barrier_system_control

From_Emergency_System_Operator

This data flow is sent by the emergency system operator to the Manage Emergency Services function and contains emergency services allocation data input by an emergency services operator, or an override to the current automatic allocation of emergency services to an incident. It consists of the following data items each of which is defined in its own DDE:

feso-emergency_action_log_request
+ feso-emergency_allocation_override
+ feso-emergency_data_input
+ feso-emergency_data_output_request
+ feso-emergency_display_update_request
+ feso-emergency_response
+ feso-archive_commands
+ feso-image_processing_parameters
+ feso-secure_area_sensor_surveillance_control
+ feso-alerts_and_advisories
+ feso-emergency_routing_input

From_Emergency_Telecommunications_System

This data flow is sent by the Emergency Telecommunications System to the Manage Emergency Services function. The terminator includes specialized systems and services that exist to provide an immediate response to emergencies that are reported by travelers, drivers and the general public, e.g. 911, E911, the new RESCUE service, etc. The data flow includes the following item which is defined in its own DDE:

fets-incident_data_FB

From_Emissions_Operations_Personnel

This data flow is input by emissions operations personnel to the Provide Emissions Management process in the Manage Traffic function. It is used to request the output of emissions and pollution data, to provide new parameters for processing of collected data, and to provide sensor control parameters. It consists of the following data items each of which is defined in its own DDE:

femo-emissions_and_pollution_data_information_request
+ femo-emissions_and_pollution_parameter_updates

From_Enforcement_Agency

This data flow is a response from an enforcement agency to a request for data from several process in ITS. It consists of the following items each of which is defined in its own DDE:

fea-cv_enforcement_agency_response
+ fea-cv_enforcement_configuration
+ fea-cv_enforcement_control
+ fea-cv_enforcement_targets
+ fea-enforcement_parameters
+ fea-speed_sensor_control
+ fea-violator_information

From_Environment

This data flow is sent from the environment to the Manage Traffic function. It provides information about the environmental conditions both generally in the area served by ITS and at the roadside. It is mostly analog data that must be converted by sensors to provide data for use by other processes. The data flow consists of the following data items each of which is defined in its own DDE:

fe-pollutant_levels

From_Equipment_Repair_Facility

This data flow is sent from the Equipment Repair Facility to the Manage Maintenance and Construction function. It contains information about the current maintenance status of the maintenance and construction vehicle fleet and associated equipment, including a record of all maintenance performed. It consists of the following data items each of which is defined in its own DDE:

ferf-current_fleet_maintenance_status
+ ferf-fleet_maintenance_record
+ ferf-equipment_repair_status
+ ferf-equipment_status_for_tracking

From_Event_Promoters

This data flow is sent from Event Promoters to the Provide Driver and Traveler Services, Manage Emergency Services, Manage Transit, and Manage Traffic functions and includes information about upcoming events to be logged as possible incidents, modal travel impact, or forwarded to travelers. It contains the following data items each of which is defined in its own DDE:

fevp-event_information
+ fevp-planned_event_data
+ fevp-event_information_for_travelers
+ fevp-event_data_for_transit

From_Financial_Institution

This data flow is sent from the Financial Institution to the Provide Electronic Payment Services function and contains data about requests for payments that have been successfully made or otherwise. It consists of the following items each of which is defined in its own DDE:

ffi-bad_charges_payment_updates
+ ffi-bad_fare_payment_updates
+ ffi-bad_toll_payment_updates
+ ffi-confirm_charges_payment
+ ffi-confirm_fare_payment
+ ffi-confirm_toll_payment
+ ffi-cv_payment_confirm
+ ffi-driver_map_payment_confirm
+ ffi-other_services_payment_confirm
+ ffi-registration_payment_confirm
+ ffi-traveler_display_payment_confirm
+ ffi-traveler_map_payment_confirm
+ ffi-traveler_other_services_payments_confirm
+ ffi-traveler_rideshare_payment_confirm
+ ffi-archive_payment_confirm
+ ffi-archive_analysis_payment_confirm
+ ffi-driver_display_payment_confirm
+ ffi-confirm_vmt_payment

From_Fleet_Freight_Manager

This data flow is sent from the Fleet-Freight Manager to the Manage Commercial Vehicles function and contains data that has been

input by a commercial vehicle fleet or freight manager. It consists of the following items each of which is defined in its own DDE:

fffm-carrier_number
+ fffm-driver_number
+ fffm-enrollment_payment_request
+ fffm-enrollment_request
+ fffm-freight_data_input
+ fffm-incident_response
+ fffm-other_data_input
+ fffm-preclearance_data
+ fffm-request_driver_route_instructions
+ fffm-request_on_board_vehicle_data
+ fffm-request_tag_data_output
+ fffm-roadside_activity_report_request
+ fffm-route_data
+ fffm-route_function_request
+ fffm-trip_identity
+ fffm-update_driver_route_instructions
+ fffm-vehicle_number
+ fffm-freight_incident_response

From_Freight_Equipment

This data flow contains information received from freight equipment, which includes intermodal freight container, intermodal chassis and truck trailers. This data flow consists of the following data items each of which is defined in its own DDE:

ffe-breach_warning
+ ffe-breach_warning_for_cv
+ ffe-cargo_info_for_cv
+ ffe-cargo_information
+ ffe-freight_breach
+ ffe-freight_equipment_info
+ ffe-integrity_data
+ ffe-integrity_data_for_cv
+ ffe-location_data
+ ffe-location_data_for_cv
+ ffe-lock_tag_data
+ ffe-lock_tag_data_for_cv
+ ffe-maintenance_data
+ ffe-maintenance_data_for_cv
+ ffe-operational_data
+ ffe-operational_data_for_cv
+ ffe-sensed_hazmat

From_Govt_Reporting_Systems

This data flow is from the Government Reporting Systems terminator to the Manage Archived Data function. It consists of the following data items each of which is defined in its own DDE:

fgrs-government_data_report_request

From_Intermodal_Freight_Depot

This data flow sent from the Intermodal Freight Depot terminator contains data about the movement of freight by means that may include methods other than commercial vehicles, e.g. heavy rail, air, sea, river, etc. This data flow consists of the following items each of which is defined in its own DDE:

fifd-freight_depot_status_data
+ fifd-intermodal_archive_data
+ fifd-intermodal_freight_event
+ fifd-intermodal_freight_event_lane_information

From_Intermodal_Freight_Shipper

This data flow is sent from the Intermodal Freight Shipper to the Manage Commercial Vehicles function. It contains the trip identification information used to identify a specific cross-border shipment and booking information for freight transportation. This data flow consists of the following data items each of which is defined in its own DDE:

fifs-breach_response
+ fifs-freight_shipper_status_data
+ fifs-trip_id_number
+ fifs-trip_identification_number
+ fifs-book_transportation

From_ISP_Operator

This data flow is sent from the ISP operator to the Provide Driver and Traveler Services function. It may contain updates of parameters used in wide area information broadcast, yellow pages services, trip planning and route selection, or requests for the output of these parameters, or requests for updates of the actual digitized map data used by the route selection processes, or

request for operational status of short range communications field equipment. The data flow consists of the following items each of which is defined in its own DDE:

fispo-request_route_selection_map_data_update
+ fispo-request_other_routes_selection_map_data_update
+ fispo-route_selection_parameters_request
+ fispo-route_selection_parameters_update
+ fispo-trip_planning_parameters_request
+ fispo-trip_planning_parameters_update
+ fispo-archive_commands
+ fispo-travel_services_operator_inputs
+ fispo-data_collection_parameters_update
+ fispo-data_collection_parameters_request
+ fispo-traveler_data_collection_request
+ fispo-request_data_collection_map_update
+ fispo-traveler_information_parameters_request
+ fispo-traveler_information_parameters_update
+ fispo-request_trip_planning_map_update
+ fispo-request_traveler_service_map_update
+ fispo-trav_info_equip_status_request

From_Location_Data_Source

This data is sent to a number of processes. It contains the actual location of the vehicle or other device, such as latitude/longitude/altitude, including any corrections to the signal, to be able to locate the ITS device accurately and support other ITS applications.

From_Map_Update_Provider

This data flow is sent to several ITS functions by the map update provider. It contains new digitized map data for displays, on-line vehicle and traveler guidance plus system evaluation, transit and commercial vehicle route generation and static data preparation. The map update provider is a specialist supplier of this type of data serving some or all of the country. The display data is used as the background to outputs of traffic, incident, maintenance and construction activities, transit routes and pollution data, while the guidance data is used by the on-line vehicle and traveler guidance facilities. Map data may also include data to be imported into the Manage Archived Data function. The data flow contains the following data items each of which is defined in its own DDE:

fmup-demand_display_update
+ fmup-emergency_display_update
+ fmup-fleet_map_update
+ fmup-incident_display_update
+ fmup-pollution_display_update
+ fmup-traffic_display_update
+ fmup-transit_map_update
+ fmup-traveler_display_update
+ fmup-traveler_map_update
+ fmup-traveler_map_update_cost
+ fmup-traveler_personal_display_update
+ fmup-traveler_personal_display_update_cost
+ fmup-vehicle_map_update
+ fmup-vehicle_map_update_cost
+ fmup-map_archive_data
+ fmup-emergency_route_map_update
+ fmup-m_and_c_display_update
+ fmup-m_and_c_route_map_update
+ fmup-info_provider_map_data
+ fmup-driver_display_update
+ fmup-driver_display_update_cost

From_MC_Administrative_Systems

This data flow is sent from the Maintenance and Construction Administrative Systems to the Manage Maintenance and Construction function. It provides input on administrative information, personnel qualifications, purchase order resupply status, and rules and regulations that could affect scheduling of maintenance and construction activities. The data flow consists of the following data items each of which is defined in its own DDE:

fmcas-m_and_c_administrative_information
+ fmcas-resupply_response
+ fmcas-m_and_c_personnel_information
+ fmcas-m_and_c_regulations

From_MC_Center_Personnel

This data flow sends the inputs and control information from the Maintenance and Construction Center Personnel to the Manage Maintenance Construction function. It includes data to control environmental data collection, fleet vehicle dispatching and routing, archival of data, maintenance and decision support system operation, and requests for maintenance activities schedules. The data flow consists of the following data items each of which is defined in its own DDE:

fmccp-archive_commands

+ fmccp-dispatch_and_routing_info
+ fmccp-env_data_collection_inputs
+ fmccp-env_data_processing_inputs
+ fmccp-env_info_dissemination_inputs
+ fmccp-env_sensor_control_inputs
+ fmccp-mdss_parameter_input
+ fmccp-request_for_schedule
+ fmccp-resource_response
+ fmccp-wz_device_control
+ fmccp-emergency_plan_response
+ fmccp-alert_and_threats_for_field_personnel
+ fmccp-request_m_and_c_tracking_display_update
+ fmccp-vehicle_systems_control
+ fmccp-infrastructure_sensor_control
+ fmccp-wz_collection_and_distribution_parameters
+ fmccp-vehicle_speed_sensor_control

From_MC_Field_Personnel

This data flow sends the inputs and control information from the Maintenance and Construction Field Personnel to the Manage Maintenance and Construction function. It includes personnel input of status related to repair of field equipment and other maintenance and work zone activities, requests for the current operational status of field devices, responses to dispatch information, and crew personnel tracking. The data flow consists of the following data items each of which is defined in its own DDE:

fmcfp-field_equip_repair_status
+ fmcfp-m_and_c_activity_status
+ fmcfp-dispatch_response
+ fmcfp-work_zone_status_inputs
+ fmcfp-crew_movements
+ fmcfp-vehicle_systems_control
+ fmcfp-environmental_sensor_control
+ fmcfp-field_equip_status_request

From_Media

This data flow is sent from the Media to the Manage Traffic, Manage Transit, and Provide Driver and Traveler Services functions. It provides input of data regarding incidents identified by the Media and traveler information. The data flow consists of the following data items each of which is defined in its own DDE:

fm-incident_details
+ fm-incident_information
+ fm-traveler_information

From_Multimodal_Crossings

This data flow is sent from multimodal crossings (e.g. drawbridges, ferries) to the Manage Traffic function. It contains data about the need for a Multi-modal Crossing to close prohibiting the passage of vehicular traffic. This data flow consists of the following data items each of which is defined in its own DDE:

fmmc-crossing_close_time
+ fmmc-crossing_close_duration
+ fmmc-crossing_status_for_roads
+ fmmc-crossing_status_for_highways
+ fmmc-crossing_closure_schedule
+ fmmc-lane_management_inputs

From_Multimodal_Transportation_Service_Provider

This data flow is sent from the multimodal transportation service provider to the Provide Driver and Traveler Services, Manage Transit, and Manage Archived Data functions, and contains details of the services available to move travelers by means other than road vehicles (e.g. heavy rail, air, sea, river, bike routes, etc.) and their respective transfer points. It consists of the following data items each of which is defined in its own DDE:

fmtsp-air_services
+ fmtsp-ferry_services
+ fmtsp-rail_services
+ fmtsp-transit_service_data
+ fmtsp-transit_transfer_clusters
+ fmtsp-multimodal_archive_data
+ fmtsp-non_motorized_services
+ fmtsp-multimodal_service_confirmation
+ fmtsp-individual_service_response

From_Other_Archives

This data is sent from the Other Archives terminator to the Manage Archived Data function. It contains the following data item which is defined in its own DDE:

foa-archive_coordination_data

From_Other_CVAS

This data flow is sent from the other commercial vehicle administration system to the Manage Commercial Vehicles function and contains border clearance, safety, credentials, and fee information about commercial vehicles located within its jurisdictional boundaries. This data flow consists of the following data items each of which is defined in its own DDE:

focvas-border_clearance
+ focvas-data_table
+ focvas-credentials
+ focvas-credentials_status
+ focvas-route_restrictions
+ focvas-safety_inspection
+ focvas-safety_status
+ focvas-cv_driver_record
+ focvas-citation_info
+ focvas-accident_report
+ focvas-permit_coordination

From_Other_Data_Sources

This data is sent from the Other Data Sources terminator to the Manage Archived Data function. It contains the following data item which is defined in its own DDE:

fods-other_data_source_archive_data

From_Other_Emergency_Management

This data flow is sent by the other emergency centers to the Manage Emergency Services function and contains information about incidents that are taking place outside the area of operation serviced by the local function. It consists of the following data item which is defined in its own DDE:

foem-incident_details
+ foem-incident_response_coordination
+ foem-mayday_emergency_data
+ foem-verified_image_match
+ foem-threat_info
+ foem-wide_area_alert_notification
+ foem-secure_area_surveillance
+ foem-secure_area_sensor_data
+ foem-threat_analysis_results
+ foem-alert_notification_status
+ foem-request_for_emergency_support
+ foem-response_for_emergency_support
+ foem-disaster_response_plan_coordination
+ foem-evacuation_information_from_other_em
+ foem-evacuation_plan_coordination
+ foem-transportation_system_status_for_disaster
+ foem-transportation_system_status_for_evacuation
+ foem-evacuation_status
+ foem-evacuation_resource_request
+ foem-evacuation_resource_response
+ foem-incident_command_information_coordination
+ foem-emergency_resource_response
+ foem-emergency_resource_request

From_Other_ISP

This data flow is sent from another information service provider (ISP) to the Provide Driver and Traveler Services function. In the case of request_data and data_supply, this represents an Other ISP located outside the geographic area of operation of the local ISP supporting the function. For the case of the other data flows, this represents one ISP (possibly a wholesaler ISP) sharing information with another. It contains the following data items each of which is defined in its own DDE:

foisp-traffic_data
+ foisp-road_weather_data
+ foisp-road_network_inventory
+ foisp-incident_data
+ foisp-transit_data
+ foisp-transit_fare_data
+ foisp-multimodal_data
+ foisp-emergency_data
+ foisp-traffic_images
+ foisp-parking_data

From_Other_MCM

This data flow is sent by other maintenance and construction facilities to the Manage Maintenance and Construction function and contains data about geographic areas of operation that are outside those of the local facility. It consists of the following data items each of which is defined in its own DDE:

fomcm-resource_coordination_data
+ fomcm-m_and_c_plan_feedback
+ fomcm-m_and_c_work_plans
+ fomcm-roadway_maint_status
+ fomcm-env_sensor_data
+ fomcm-road_weather_info
+ fomcm-work_zone_images
+ fomcm-work_zone_info

From_Other_MCV

This data flow is sent by other maintenance and construction vehicles to vehicles within the Manage Maintenance and Construction function and contains data about geographic areas of operation that are outside those of the local facility. The data flow consists of the following data items each of which is defined in its own DDE:

fomcv-vehicle_operational_data
+ fomcv-work_zone_intrusion_detection_on_board
+ fomcv-work_zone_intrusion_alert_on_board
+ fomcv-work_zone_intrusion_warning_to_crew
+ fomcv-crew_movements
+ fomcv-env_conditions

From_Other_Parking

This data flow is sent from the other parking systems to the Manage Traffic function and contains data on the use of parking lots or requests for transaction information. It consists of the following data items each of which is defined in its own DDE:

fop-parking_coordination_data

From_Other_Payment_Administration

This data is sent from the Other Payment Administration terminator to the Process Electronic Toll Payment function. It contains the following data items each of which is defined in its own DDE:

fopa-toll_pricing_data
+ fopa-toll_charges_reconciliation_data
+ fopa-vmt_coordination_data

From_Other_RS

This data flow is received from the Other RS terminator and is used to control sensors and transfer data from other sensors, to receive data for roadway information systems (e.g., dynamic message signs), and to control roadside indicator devices such as intersection controllers and ramp meter controllers. It consists of the following data items each of which is defined in its own DDE:

fors-roadway_info_data_from_devices
+ fors-roadway_info_data_from_sensors
+ fors-sensor_data
+ fors-sensor_status
+ fors-sensor_control
+ fors-device_status
+ fors-device_control
+ fors-signal_control
+ fors-signal_status
+ fors-signal_fault

From_Other_Traffic_Management

This data flow is sent by Other Traffic Management to the Manage Traffic function and contains traffic data and device control requests for geographic areas of operation that are outside those of the local center. It consists of the following data items each of which is defined in its own DDE:

fotm-device_control_request
+ fotm-traffic_data
+ fotm-roadway_detours_and_closures
+ fotm-road_weather_data
+ fotm-road_network_inventory_and_status
+ fotm-disaster_network_status
+ fotm-network_status_for_evacuation
+ fotm-current_event_data
+ fotm-planned_event_data
+ fotm-traffic_image_data
+ fotm-device_status
+ fotm-device_inventory
+ fotm-device_data
+ fotm-evacuation_information
+ fotm-traffic_control_strategy_for_disaster_or_evacuation
+ fotm-permit_coordination_for_traffic

From_Other_Transit_Management

This data flow is sent by the Other Transit Management centers to the Manage Transit function and contains data from the other transit centers. It consists of the following data items each of which is defined in its own DDE:

fotrm-transit_traveler_information
+ fotrm-transit_fare_data_coordination
+ fotrm-transit_service_data
+ fotrm-individual_service_response

From_Other_Vehicle

This data flow is used within the Provide Vehicle Monitoring and Control function to receive safety and platooning data from surrounding vehicles. The data flow consists of the following data items each of which is defined in its own DDE:

fov-safety_msg_data_from_other_vehicles
+ fov-platoon_data_from_other_vehicle
+ fov-safety_status_from_other_vehicle

From_Parking_Operator

This data flow is sent from a parking lot operator to the Manage Traffic function and contains data about the parking lot state and occupancy as supplied by a parking lot operator as well as payment transaction information exchanged with the Provide Electronic Payment Services function. It consists of the following data items each of which is defined in its own DDE:

fpo-confirm_advanced_parking_payment
+ fpo-current_lot_state
+ fpo-lot_occupancy
+ fpo-parking_lot_charge_change_response
+ fpo-archive_commands
+ fpo-parking_lot_data
+ fpo-transaction_reports_request
+ fpo-parking_lot_hours_of_operation

From_Payment_Administrator

This data flow is sent to the Provide Electronic Payment Services function by the payment administrator. It contains the response to requests for changes in road charging prices and policies, toll prices, and advanced tolls, plus new toll price data. It consists of the following data items each of which is defined in its own DDE:

fpa-confirm_advanced_toll
+ fpa-toll_price_changes_response
+ fpa-toll_price_data
+ fpa-archive_commands
+ fpa-alert_notification_input
+ fpa-vmt_parameters
+ fpa-vmt_price_data

From_Pedestrians

This data flow contains data from pedestrians that indicates their need to have the road or freeway closed to traffic as a temporary measure while they cross. This data is sent to the Provide Traffic Surveillance facility of the Manage Traffic function and contains the following data items each of which is defined in its own DDE:

fp-pedestrian_images
+ fp-pedestrian_data
+ fp-pedestrian_presence

From_Potential_Obstacles

This data flow is sent from potential obstacles to the Provide Vehicle Monitoring and Control function. It contains analog data that provides information on potential obstacles that can be encountered by a vehicle.

From_Public_Health_System

Inputs from the Public Health System terminator with supporting details on how best to respond to emergencies and evacuation situations involving biological or other medically related situations. This data flow consists of the following items each of which is defined in its own DDE:

fphs-public_health_response
+ fphs-public_health_evacuation

From_Rail_Operations

This data flow is sent from a railroad operated operations center (or centers) to the ITS Manage Traffic and Manage Maintenance and Construction functions. It contains information about scheduled and/or planned railroad activity that may be relevant to ITS traffic management (e.g. train schedules through busy corridors, maintenance schedules for railroad owned and maintained grade crossing equipment, etc.). This is typically informational data and is not required for timely operation of grade crossing protection and safety devices. It is however the source of data for use in route planning, alternate route determination, railroad incident notifications, and as a factor in maintenance and construction work plan scheduling, etc. This data flow consists of the following data items each of which is defined in its own DDE:

fro-train_schedules
+ fro-maintenance_schedules
+ fro-incident_notification
+ fro-m_and_c_plan_feedback_from_rail
+ fro-railroad_schedules
+ fro-rail_incident_response_status
+ fro-disaster_response_plan_coordination
+ fro-evacuation_plan_coordination
+ fro-rail_system_status_for_disaster
+ fro-rail_system_status_for_evacuation
+ fro-rail_incident_information
+ fro-railroad_schedules_for_emergency

From_Roadway_Environment

This data flow is sent from the roadway environment to the Provide Vehicle Monitoring and Control, Manage Maintenance and Construction, and Manage Traffic functions. It contains analog data about the environment actually around the roadway itself covering such things as emissions, fog, ice, snow, etc. It contains the following data items each of which is defined in its own DDE:

fre-physical_conditions
+ fre-roadside_data
+ fre-environmental_conditions
+ fre-roadway_characteristics
+ fre-roadway_characteristics_for_mcv
+ fre-roadway_infrastructure_characteristics
+ fre-environmental_conditions_at_roadway

From_Secure_Area_Environment

This data flow is sent from the secure area environment to the Manage Emergency Services function and includes video images, audio, and area characteristics (biological, chemical, radiological, motion, presence, etc.) that are monitored by surveillance equipment (such as a closed circuit televisions and audio equipment), and sensors. The environment being monitored could include areas frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) or areas typically away from travelers (i.e., bridges, tunnels, and other infrastructure). This data flow consists of the following data items each of which is defined in its own DDE:

fsae-area_image
+ fsae-area_audio
+ fsae-area_characteristics
+ fsae-area_image_for_remote_traveler
+ fsae-area_audio_for_remote_traveler
+ fsae-area_characteristics_for_remote_traveler
+ fsae-area_image_for_transit_vehicle
+ fsae-area_audio_for_transit_vehicle
+ fsae-area_characteristics_for_transit_vehicle

From_Shelter_Providers

This data flow is sent from the Shelter Providers terminator and includes shelter location, availability, type, and other related information pertaining to one or more shelters operated within a region. It contains the following data item each of which is defined in its own DDE:

fsp-shelter_information
+ fsp-shelter_information_to_travelers

From_Storage_Facility

This data flow is sent from the Storage Facility to the Manage Maintenance and Construction function. It provides inventory data regarding types and quantities of materials and equipment available at the storage facility. The data flow consists of the following data items each of which is defined in its own DDE:

fsf-materials_status
+ fsf-equipment_availability
+ fsf-equipment_availability_for_fleet_manager
+ fsf-equipment_status_for_tracking

From_Surface_Transportation_Weather_Service

This data flow consists of information provided by a Surface Transportation Weather Service and includes the current and predicted road and weather conditions associated with the transportation system, including data from environmental sensors belonging to that service. This flow also includes control data for sensors. This data flow contains the following items each of which is defined in its own DDE:

fstws-env_sensor_data_for_maint
+ fstws-env_sensor_data_for_traffic
+ fstws-roadway_env_sensor_control
+ fstws-surface_trans_weather_forecasts
+ fstws-surface_trans_weather_observations
+ fstws-trans_weather_archive_data

From_Telecom_System_for_Traveler_Info

This data flow is sent from the Telecommunications Systems for Traveler Information terminator and contains a region-specific request from a 511 system for traveler information. This request could represent a single caller's request for information or a request for a batch upload of regional traveler information. It contains the following data items each of which is defined in its own DDE:

ftsti-telecomm_batch_regional_info_request
+ ftsti-telecomm_caller_request

From_Toll_Operator

This data flow is sent to the Provide Electronic Payment Services function and contains input from a local operator at a toll plaza. It consists of the following data items each of which is defined in its own DDE:

fto-local_toll_price_variations

From_Traffic

This data flow is sent to the Manage Traffic and Manage Maintenance and Construction function. It contains analog data from physical traffic characteristics on roads and highways that can be read by sensors within ITS and translated into volume, speed, pollution levels, and vehicle presence. It consists of the following items each of which is defined in its own DDE:

ftrf-traffic_images
+ ftrf-traffic_data
+ ftrf-vehicle_pollutant_levels
+ ftrf-vehicle_presence

From_Traffic_Operations_Personnel

This data flow is input by traffic operations personnel to various processes in the Manage Traffic function. It is used to request the output of traffic, incident, traffic and travel demand, or field equipment data, to control closed circuit television (cctv) systems, environmental sensors, or safeguard or barrier systems, to input status of field equipment, to request remote control of field equipment belonging to a center outside the local jurisdiction, or to provide new parameters for use by processes in the Traffic Incident, Demand. It also provides information about roadway characteristics (shoulder width, pavement type, speed limit, etc.) and lane restrictions for high-occupancy vehicle (hov) and reversible lanes. It consists of the following data items each of which is defined in its own DDE, and some of which are groups of input flows belonging to the same facility:

ftop-demand_management_inputs_FB
+ ftop-incident_management_inputs_FB
+ ftop-field_equip_fault_data_input
+ ftop-field_equip_fault_data_request
+ ftop-strategy_override
+ ftop-traffic_information_requests
+ ftop-traffic_data_parameter_updates
+ ftop-video_camera_strategy_change
+ ftop-resource_request
+ ftop-weather_request_information
+ ftop-roadway_characteristics
+ ftop-static_data
+ ftop-archive_command
+ ftop-disaster_response_plan_input
+ ftop-evacuation_plan_input
+ ftop-barrier_safeguard_control_parameters
+ ftop-lighting_system_control_parameters
+ ftop-alert_notification_status
+ ftop-vehicle_signage_input
+ ftop-roadway_info_input
+ ftop-roadway_incident_input
+ ftop-vehicle_speed_sensor_control
+ ftop-variable_speed_limit_control_parameters
+ ftop-device_control_request_to_other_center
+ ftop-env_sensor_control
+ ftop-hov_control_parameters
+ ftop-reversible_lane_restriction_data
+ ftop-imbalance_parameters
+ ftop-decision_support_parameters
+ ftop-time_dependent_operations_input
+ ftop-dynamic_lane_mgmt_control
+ ftop-roadway_warning_system_control

From_Transit_Operations_Personnel

This data flow is sent by the transit operations personnel to the Manage Transit function. It contains acknowledgment of potential incidents, security actions, a request for output of transit fare transaction data, control inputs for video cameras and fare data updates. The data flow consists of the following data items each of which is defined in its own DDE:

ftrop-transit_vehicle_maintenance_updates
+ ftrop-approved_corrections

+ ftrop-archive_commands
+ ftrop-coordination_data
+ ftrop-disable_transit_vehicle
+ ftrop-emergency_plan_response
+ ftrop-fare_updates
+ ftrop-initiate_service_updates
+ ftrop-media_parameter_request
+ ftrop-media_parameter_updates
+ ftrop-parking_information_request
+ ftrop-passenger_loading_updates
+ ftrop-planning_parameters
+ ftrop-planning_parameters_update_request
+ ftrop-request_fare_output
+ ftrop-request_response_parameter_output
+ ftrop-request_transit_vehicle_data
+ ftrop-response_parameters
+ ftrop-security_action
+ ftrop-technician_information_request
+ ftrop-technician_information_updates
+ ftrop-trans_weather_info_request
+ ftrop-transit_display_update_request
+ ftrop-transit_operations_inputs
+ ftrop-transit_vehicle_operator_information_request
+ ftrop-transit_vehicle_operator_information_updates
+ ftrop-transit_vehicle_operator_route_preferences
+ ftrop-transit_services_output_request
+ ftrop-transit_vehicle_maintenance_information_request
+ ftrop-transit_vehicle_maintenance_specs
+ ftrop-alert_notification_status
+ ftrop-transit_vehicle_inventory_input

From_Transit_Vehicle_Operator

This data flow is sent from the transit vehicle operator. It consists of the following data items each of which is defined in its own DDE:

ftvo-fare_transaction_mode_set_up
+ ftvo-information_updates
+ ftvo-paratransit_status
+ ftvo-request_batch_mode_data_transfer
+ ftvo-request_logon_authentication
+ ftvo-secure_transit_vehicle_emergency_request
+ ftvo-secure_transit_vehicle_surveillance_control
+ ftvo-transit_service_status

From_Travel_Services_Provider

This data is sent from the Information and Service Providers to the Provide Driver and Traveler Services function. It contains the following data items each of which is defined in its own DDE:

ftsp-request_provider_registration
+ ftsp-provider_profile_update
+ ftsp-transaction_confirmation
+ ftsp-travel_services_data
+ ftsp-emergency_travel_service_update

From_Traveler

This data flow is sent from the traveler to the Provide Driver and Traveler Services and the Manage Transit functions and contains requests for information or guidance from a traveler, either at a kiosk or using a personal device. It also includes sensor data indicating the presence of a traveler on a transit vehicle and their image. It consists of the following data items each of which is defined in its own DDE:

ft-boarding_and_alighting
+ ft-destination_at_roadside
+ ft-destination_on_vehicle
+ ft-extra_trip_data
+ ft-guidance_data
+ ft-guidance_map_update_request
+ ft-guidance_request
+ ft-guidance_route_accepted
+ ft-other_services_roadside_request
+ ft-other_services_vehicle_request
+ ft-personal_emergency_request
+ ft-personal_extra_trip_data
+ ft-personal_map_display_update_request
+ ft-personal_trip_planning_requests

+ ft-request_advisory_information
+ ft-remote_emergency_request
+ ft-secure_transit_vehicle_emergency_request
+ ft-transit_information_request
+ ft-traveler_roadside_image
+ ft-traveler_vehicle_image
+ ft-trip_planning_requests

From_Traveler_Card

This data flow is sent from the traveler card / payment instrument terminator to the Provide Electronic Payment Services function. It consists of the following data items each of which is defined in its own DDE:

ftc-confirm_payment_at_parking_lot
+ ftc-confirm_fare_payment_at_roadside
+ ftc-confirm_fare_payment_on_transit_vehicle
+ ftc-confirm_payment_at_toll_plaza
+ ftc-driver_vehicle_input_credit_identity
+ ftc-parking_vehicle_payment_data
+ ftc-toll_vehicle_payment_data
+ ftc-transit_roadside_tag_data
+ ftc-traveler_roadside_input_credit_identity_for_transit
+ ftc-traveler_vehicle_input_credit_identity_for_transit
+ ftc-transit_vehicle_tag_data
+ ftc-traveler_personal_input_credit_identity
+ ftc-traveler_roadside_input_credit_identity
+ ftc-traveler_parking_input_credit_identity
+ ftc-confirm_traveler_parking_payment
+ ftc-traveler_personal_information
+ ftc-traveler_remote_personal_information
+ ftc-vmt_vehicle_payment_data
+ ftc-confirm_vmt_payment

From_Vehicle_Characteristics

This data flow is sent from the vehicle characteristics terminator. It represents the presence of a vehicle near a sensor, which allows the sensor to create an output that can be used to identify a particular vehicle and its characteristics, such as speed, the number of wheels, size, pollution parameters, etc., for speed monitoring, toll payment and parking lot charging purposes. The sensor may also determine the visible characteristics of a vehicle and use that data to obtain information about speed or toll or parking lot charge violators.

From_Wayside_Equipment

This data flow represents information received by HRI from railroad maintained and operated wayside interface equipment (track circuits, gate controllers, local connections to centralized sites via railroad communications networks, etc.). This is assumed to be a real-time, or near real-time interface capable of providing direct communications with (or otherwise detecting) approaching trains. This data flow consists of the following data items each of which is defined in its own DDE:

fwe-approaching_train_announcement
+ fwe-train_data
+ fwe-wayside_equipment_status

From_Weather_Service

This data flow consists of data that is provided by the Weather Service terminator. The current and forecast weather data items may be organized by geographic area to allow for local variations. This data flow contains the following items each of which is defined in its own DDE:

fws-weather_and_env_data_for_archive
+ fws-current_weather_observations
+ fws-weather_forecasts
+ fws-env_sensor_data_for_maint
+ fws-env_sensor_data_for_isp
+ fws-env_sensor_data_for_traffic
+ fws-roadway_env_sensor_control
+ fws-traffic_environment_sensor_data_status
+ fws-maintenance_environment_sensor_data_status

fro-maintenance_schedules

This data flow provides the information traffic management needs to plan around scheduled maintenance by railroad crews at highway grade crossings that may affect highway traffic.

fro-rail_incident_information

This data flow provides detailed incident information gathered by rail at the incident site and contains detailed information which includes the number and extent of injuries, identification of vehicles and people involved, specification of hazardous material, and any other information required to completely and accurately determine the scope and severity of the incident and the required response. The data flow consists of the following data items each of which is defined in its own DDE:

incident_location
+ incident_start_time
+ incident_duration
+ incident_type
+ incident_traffic_impact

fro-rail_incident_response_status
This data flow provides the current status of an incident response indicating site management strategies in effect, incident clearance status, the incident command structure that is in place, and points of contact.

fro-rail_system_status_for_disaster
This data flow consist of a report of the current status of the rail system as viewed by rail operations for disaster response and recovery.

fro-rail_system_status_for_evacuation
This data flow consists of a report of the current status of the rail system as viewed by rail operations during an evacuation.

fro-railroad_schedules
This data flow is sent from the Rail Operations to the Manage Maintenance and Construction function. It contains train schedules, maintenance schedules, and other information from the railroad to assist in maintenance and construction activity scheduling.

fro-railroad_schedules_for_emergency
This data flow is sent from the Rail Operations to the Manage Emergency Services function. It contains train schedules, maintenance schedules, and other information from the railroad to assist in routing of dispatching emergency vehicles.

fro-train_schedules
This data flow is used by railroads to provide ITS traffic management functions of train movement schedules that may be pertinent to traffic and route planning, highway maintenance planning, etc. As scheduled information, it may be used to determine the probability of grade crossing blockage by trains and therefore the expected traffic flow rates on specific vehicle routes. Each event would typically be associated with a specific crossing, train identification, a scheduled arrival time and an estimated closure time.

fsae-area_audio
This data flow is sent from the secure area environment to the Manage Emergency Services function and includes audio input to equipment monitoring a secure area. This environment could include areas typically away from travelers (i.e., bridges, tunnels, and other infrastructure). The data can also be used for incident or threat detection using automatic analysis techniques.

fsae-area_audio_for_remote_traveler
This data flow is sent from the secure area environment to the Manage Emergency Services function and includes audio input to equipment monitoring a secure area. This environment could include areas frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, etc.). The data can also be used for incident or threat detection using automatic analysis techniques.

fsae-area_audio_for_transit_vehicle
This data flow is sent from the secure area environment to the Manage Emergency Services function and includes audio input to equipment monitoring a secure area. This environment include on-board a transit vehicle. The data can also be used for incident or threat detection using automatic analysis techniques.

fsae-area_characteristics
This data flow is sent from the secure area environment to the Manage Emergency Services function and represents characteristics (biological, chemical, radiological, motion, object presence, etc.) that are monitored by sensors and processed for detection of threats or infrastructure integrity.

fsae-area_characteristics_for_remote_traveler
This data flow is sent from the secure area environment to the Manage Emergency Services function and represents characteristics (biological, chemical, radiological, motion, object presence, etc.) that are monitored by sensors and processed for detection of threats or infrastructure integrity.

fsae-area_characteristics_for_transit_vehicle
This data flow is sent from the secure area environment to the Manage Emergency Services function and represents characteristics (biological, chemical, radiological, motion, object presence, etc.) that are monitored by sensors and processed for detection of threats or infrastructure integrity.

fsae-area_image
This data flow is sent from the secure area environment to the Manage Emergency Services function. It represents video images typically input to a closed circuit television (cctv) monitoring a secure area. This environment could include areas typically away from travelers (i.e., bridges, tunnels, and other infrastructure). The data can also be used for incident or threat detection using automatic analysis techniques.

fsae-area_image_for_remote_traveler
This data flow is sent from the secure area environment to the Manage Emergency Services function. It represents video images typically input to a closed circuit television (cctv) monitoring a secure area. This environment could include areas frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, etc.). The data can also be used for incident or threat detection using automatic analysis techniques.

fsae-area_image_for_transit_vehicle
This data flow is sent from the secure area environment to the Manage Emergency Services function. It represents video images typically input to a closed circuit television (cctv) monitoring a secure area. This environment includes on-board a transit vehicle. The data can also be used for incident or threat detection using automatic analysis techniques.

fsf-equipment_availability
This data flow is sent from the Storage Facility to the Manage Maintenance and Construction function and contains descriptive information about the types, quantities, and status of the maintenance and construction equipment available at the facility.

fsf-equipment_availability_for_fleet_manager
This data flow is sent from the Storage Facility to the Manage Maintenance and Construction function and contains descriptive information about the types, quantities, and status of the maintenance and construction equipment available at the facility to assist the fleet manager in scheduling operations.

fsf-equipment_status_for_tracking
This data flow is sent from the Storage Facility to the Manage Maintenance and Construction function and contains data about the types, quantities, and status of the maintenance and construction equipment at the facility.

fsf-materials_status
This data flow is sent from the storage facility to the Manage Maintenance and Construction function and contains data about the types and quantities of materials available at the facility.

fsp-shelter_information
This data flow contains information about individual shelters or groups of shelters operated by a relief organization in a region. It contains the location, type, available space, and any other facilities provided at the shelter(s).

fsp-shelter_information_to_travelers
This data flow contains information about individual shelters or groups of shelters operated by a relief organization in a region that may be used by the traveler information services function. It contains the location, type, available space, and any other facilities provided at the shelter(s).

fstws-env_sensor_data_for_maint
This data flow provides outputs from a set of environment sensors that are monitored by a surface transportation weather service. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}

fstws-env_sensor_data_for_traffic
This data flow provides outputs from a set of environment sensors that are monitored by a surface transportation weather service. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}

fstws-roadway_env_sensor_control
This data flow provides control commands for environmental sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environmental_sensor_control}

fstws-surface_trans_weather_forecasts
This data flow contains surface transportation related forecasts of weather variables, including temperature (surface and pavement), pressure, wind speed, wind direction, humidity, precipitation, roadway visibility, and pavement conditions as well as forecast data attributes. This data flow also contains surface transportation specific advisories for weather related events. The weather forecasts are classified by meteorological scales, each of which cover a range of time and a range of space. The scales are micro (timescale of minutes and horizontal scale of meters), miso (timescale of minutes to an hour before the event and horizontal scale of meters to a kilometer), meso (timescale of several hours before an event and horizontal scale of one to 100 kilometers), synoptic (a timescale of 12 hour to several day horizon and a horizontal scale of 100 to 5000 kilometers) and climatic (a timescale beyond synoptic and a horizontal scale greater than 5000 kilometers). This data flow consists of the following data items each of which is defined in its own DDE:

micro_scale_surface_trans_weather_forecasts
+ miso_scale_surface_trans_weather_forecasts
+ meso_scale_surface_trans_weather_forecasts
+ synoptic_scale_surface_trans_weather_forecasts
+ climatic_scale_surface_trans_weather_forecasts

+ surface_trans_weather_scale_forecast_data_attributes

fstws-surface_trans_weather_observations

This data flow contains surface transportation related weather observations (e.g. temperature, pressure, wind parameters, humidity, precipitation, visibility, pavement temperature, pavement conditions, etc.) and surface transportation weather observation attributes (or meta data). This data flow consists of the following data items each of which is defined in its own DDE:

surface_trans_weather_observations
+ weather_observation_attributes

fstws-trans_weather_archive_data

This data flow from the Surface Transportation Weather Service terminator to the Manage Archived Data function contains a catalog and details of surface transportation weather data that may be of interest to the archive data users systems that cannot be obtained directly from ITS functions. This data flow contains the following items each of which is defined in its own DDE:

surface_trans_weather_archive_catalog
+ surface_trans_weather_data_for_archive

ft-boarding_and_alighting

This data flow contains analog data about the presence of passengers boarding and exiting a transit vehicle.

ftc-confirm_fare_payment_at_roadside

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains confirmation that the requested payment of the current transit fare, plus if required the cost of advanced tolls, and/or parking lot charges, and/or transit fares, has been successfully deducted from the total credit previously stored by the payment instrument. This data flow will only apply to those types of payment instrument that can carry stored credit and will not be set by those that only contain a credit identity.

ftc-confirm_fare_payment_on_transit_vehicle

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains confirmation that the requested payment of the current transit fare, plus if required the cost of advanced tolls, and/or parking lot charges, and/or transit fares, has been successfully deducted from the total credit previously stored by the payment instrument. This data flow will only apply to those types of payment instrument that can carry stored credit and will not be set by those that only contain a credit identity.

ftc-confirm_payment_at_parking_lot

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains confirmation that the requested parking lot charge has been successfully deducted from the total credit previously stored by the payment instrument. This data flow will only apply to those types of payment instrument that can carry stored credit and will not be set by those that only contain a credit identity.

ftc-confirm_payment_at_toll_plaza

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains confirmation that the requested payment of the current toll, plus if required the cost of advanced tolls, and/or parking lot charges, and/or transit fares, has been successfully deducted from the total credit previously stored by the payment instrument. This data flow will only apply to those types of payment instrument that can carry stored credit and will not be set by those that only contain a credit identity.

ftc-confirm_traveler_parking_payment

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains confirmation that the requested parking lot charge has been successfully deducted from the total credit previously stored by the traveler card / payment instrument carried by the traveler. This data flow will only apply to those types of traveler cards / payment instruments that can carry stored credit and will not be set by those that only contain a credit identity.

ftc-confirm_vmt_payment

This data flow is sent from the traveler card / payment instrument to the Provide Open Road Tolling function and is used to confirm that payment has been deducted from a cash card or credit/debit card mechanism (e.g., for individual vehicle owners, taxis, or rental cars) to pay road use charges.

ftc-driver_vehicle_input_credit_identity

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains the data necessary to allow automatic billing of the user of the payment instrument for the update of the navigable map database used within a vehicle for on-line driver guidance, or the cost of commercial vehicle electronic credential filing and tax payments. For the database update, the vehicle may be a private car, a transit vehicle, or a commercial vehicle.

ftc-parking_vehicle_payment_data

This data flow is sent from the Traveler Card / Payment Instrument to the Provide Electronic Payment Services function and is used to either identify a particular payment instrument or the amount of credit that it currently has stored, when the instrument is being used on-board a vehicle at a parking lot. In either case the data will be used to enable automatic billing for the current parking lot charge, plus if required, advanced payments for tolls, and/or parking lot charges and/or transit fares. The vehicle may be a private car or van, or a transit vehicle, or a commercial vehicle. In the case of a transit vehicle, the payments will be for the vehicle itself and not for its passengers, i.e. travelers.

ftc-toll_vehicle_payment_data

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function and is used to either identify a particular payment instrument or the amount of credit that it currently has stored, when the instrument is being used on-board a vehicle passing through a toll plaza. In either case the data will be used to enable automatic billing for the current toll, plus if required, advanced payments for tolls, and/or parking lot charges and/or transit fares. The vehicle may be a private car or van, a transit vehicle, or a commercial vehicle. In the case of a transit vehicle, the payments will be for the vehicle itself and not for its passengers, i.e. travelers.

ftc-transit_roadside_tag_data

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function and is used to either identify a particular payment instrument or the amount of credit that it currently has stored, when the instrument is being used at the roadside, i.e. a transit stop. In either case the data will be used to enable automatic billing for the current transit fare, plus if required, advanced payments for tolls, and/or parking lot charges and/or transit fares.

ftc-transit_vehicle_tag_data

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function and is used to either identify a particular payment instrument or the amount of credit that it currently has stored, when the instrument is being used on-board a transit vehicle. In either case the data will be used to enable automatic billing for the current transit fare, plus if required, advanced payments for tolls, and/or parking lot charges and/or transit fares. The payments will be for the transit vehicle passengers, i.e. travelers, and not for the vehicle itself.

ftc-traveler_parking_input_credit_identity

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains the data necessary to allow identification and automatic billing of the user for payment at a parking facility.

ftc-traveler_personal_information

This data flow from the Traveler Card terminator contains information about the traveler using a personal device that may be used by ITS functions to identify travelers (e.g. name, address, etc.) and their traveling preferences (e.g. mode choices historical information, traveler profile data).

ftc-traveler_personal_input_credit_identity

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains the data necessary to allow automatic billing of the user of the payment instrument when they are using a personal device, such as a Personal Digital Assistant (PDA) or similar type of unit, that can be used by the traveler to provide travel information, trip planning, or on-line guidance during a multimodal trip.

ftc-traveler_remote_personal_information

This data flow from the Traveler Card terminator contains information about the traveler using a kiosk that may be used by ITS functions to identify travelers (e.g. name, address, etc.) and their traveling preferences (e.g. mode choices historical information, traveler profile data).

ftc-traveler_roadside_input_credit_identity

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains the data necessary to allow automatic billing of the user of the payment instrument when they are at a kiosk that provides facilities for traveler information and trip planning.

ftc-traveler_roadside_input_credit_identity_for_transit

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains the data necessary to allow automatic billing of the traveler for advanced tolls, and/or parking lot charges, and/or transit fares, when the traveler is at the roadside, i.e. a transit stop.

ftc-traveler_vehicle_input_credit_identity_for_transit

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains the data necessary to allow automatic billing of the traveler for advanced tolls, and/or parking lot charges, and/or transit fares, when the traveler is on-board a transit vehicle.

ftc-vmt_vehicle_payment_data

This data flow is sent from the traveler card / payment instrument to the Provide Open Road Tolling function and is used to carry payment data from a cash card or credit/debit card mechanism (e.g., for individual vehicle owners, taxis, or rental cars) to pay road use charges.

ft-destination_at_roadside

This data flow is sent by the traveler to the Manage Transit function and is used to specify the destination of a desired service for which a fare has to be paid at the roadside, i.e. a transit stop.

ft-destination_on_vehicle

This data flow is sent by the traveler to the Manage Transit function and is used to specify the destination of a desired service for which a fare has to be paid on-board the transit vehicle.

ft-extra_trip_data

This data flow is sent from the traveler to the Provide Driver and Traveler Services function and contains analog data from which sensors can determine extra trip request data to supplement that already input by a traveler at a kiosk. Examples of these inputs are speech, signals from relays driven by switches, buttons, etc., or input from touch screens.

ft-guidance_data
This data flow is sent from the traveler to the Provide Driver and Traveler Services function and contains data to be used in preparing the request for a traveler route.

ft-guidance_map_update_request
This data flow is sent from the traveler to the Provide Driver and Traveler Services function and contains a request for an update of the digitized map data used to provide on-line traveler guidance.

ft-guidance_request
This data flow is sent from the traveler to the Provide Driver and Traveler Services function. It contains the a request to provide on-line traveler guidance and specifies a choice of the type of preferred guidance, i.e. infrastructure based dynamic, or totally autonomous. The traveler will be prompted for further data in order that the guidance can begin.

ft-guidance_route_accepted
This data flow is sent from the driver to the Provide Driver and Traveler Services function. It contains acceptance of the route that has been generated in response to a previous request from the traveler for on-line guidance. Guidance will not begin until the acceptance has been received.

fto-local_toll_price_variations
This data flow is sent from the toll operator to the Provide Electronic Payment Services function and defines changes to the toll prices that are provided locally by the toll operator.

ftop-alert_notification_status
This data flow contains information indicating the status of the alert from the traffic operations personnel including the information systems that are being used to provide the alert notification.

ftop-archive_command
This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains data administration commands that the Manage Traffic function will use to control the archival of traffic data by the Manage Archived Data function. These commands may include the data that is to be archived, how the data is processed, how the data is stored, data elements that are deleted, etc.

ftop-barrier_safeguard_control_parameters
This data flow is received from the traffic operations personnel and is used to request activation of a barrier system (gates and other automated systems for roadway entry control) or a safeguard system (e.g. blast shields and other automated equipment used to mitigate the impact of incidents on transportation infrastructure).

ftop-decision_support_parameters
This data flow sent by the Traffic Operations Personnel to the Manage Traffic function and contains control parameters for the decision support process for incident response.

ftop-defined_incident_response_data_request
This data flow is sent to the Manage Traffic function and enables Traffic Operations Personnel to request the data currently held by the store of defined incident responses held by the Manage Incidents facility.

ftop-defined_incident_response_data_update
This data flow is sent to the Manage Traffic function and enables Traffic Operations Personnel to amend data currently held by the store of defined incident responses held by the Manage Incidents facility.

ftop-demand_data_request
This data flow is sent to the Manage Traffic function from the traffic operations personnel and is a request for output of the current contents of the store of input data to be used in demand forecasting.

ftop-demand_data_update_request
This data flow is sent to the Manage Traffic function from the traffic operations personnel and is a request to update the current contents of the store of input data to be used in demand forecasting.

ftop-demand_forecast_request
This data flow is sent to the Manage Traffic function from the traffic operations personnel and is a request for a calculation of a new demand forecast based on the data currently available in the store of input data to be used in demand forecasting.

ftop-demand_management_inputs_FB
This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains all the input flows for the Manage Demand facility. It consists of the following data items each of which is defined in its own DDE:

ftop-demand_data_request
+ ftop-demand_data_update_request
+ ftop-demand_forecast_request
+ ftop-demand_policy_information_request
+ ftop-demand_policy_activation
+ ftop-demand_policy_updates

ftop-demand_policy_activation
This data flow is sent to the Manage Traffic function from the traffic operations personnel and is a request for the activation of the

demand policies dictated by the data in the demand forecast data store.

ftop-demand_policy_information_request
This data flow is sent to the Manage Traffic function and is a request from the traffic operations personnel for the data currently held in the demand policy data store.

ftop-demand_policy_updates
This data flow is sent to the Manage Traffic function from the traffic operations personnel and contains permanent changes to the data held in the store of demand policy data.

ftop-device_control_request_to_other_center
This data flow is received from the traffic operations personnel and is used to request remote control of field equipment belonging to another traffic management center outside the local jurisdiction.

ftop-disaster_response_plan_input
This data flow is the response traffic operations personnel has provided as input and updates to a disaster response and recovery plan. It includes the following data item which is defined in its own DDE:

traffic_disaster_response_plan

ftop-dynamic_lane_mgmt_control
This data flow is received from the traffic operations personnel and is used to input dynamic lane management and shoulder use system information. This would include information to set the optimal configuration algorithm parameters.

ftop-env_sensor_control
This data flow provides operator initiated control commands for an environmental sensor, which is identified by its station id and sensor identity. The sensor may be within or outside the local jurisdiction, assuming permission for remote control has been granted.

ftop-evacuation_plan_input
This data flow is the response traffic operations personnel has provided as input and updates to an evacuation plan. It includes the following data item which is defined in its own DDE:

traffic_evacuation_plan

ftop-field_equip_fault_data_input
This data flow is sent to the Manage Traffic function from the traffic operations personnel and contains data to load into the store of current traffic field equipment fault data.

ftop-field_equip_fault_data_request
This data flow is sent from traffic operations personnel requesting details of the current operational status (state of the device, configuration, and fault data) of all field equipment. It also includes an request for the repair status of all devices that are in the process of being cleared by the Manage Maintenance and Construction function.

ftop-hov_control_parameters
This data flow is sent by traffic operations personnel and is used to input lane restrictions (e.g., hours of operation) for high-occupancy vehicle (hov) lanes.

ftop-imbalance_parameters
This data flow is sent by traffic operations personnel to the Manage Traffic function and contains threshold parameters for detecting imbalances in corridor performance in the geographic area covered by ITS.

ftop-incident_camera_action_request
This data flow is sent to the Manage Traffic function from the traffic operations personnel. It contains a request for a change to the operating parameters of a closed circuit television (cctv) system used to provide incident management data. These parameters may control camera pan, tilt, and zoom, plus other picture controls.

ftop-incident_data_amendment
This data flow is sent to the Manage Traffic function and enables traffic operations personnel to amend data currently held by the stores of current incidents and planned events held by the Manage Incidents facility.

ftop-incident_information_requests
This data flow is sent to the Manage Traffic function and contains requests for output of the data held in the stores of current incidents or planned events maintained by the Manage Incidents facility.

ftop-incident_management_inputs_FB
This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains all the input flows for the Manage Incidents facility. It consists of the following data items each of which is defined in its own DDE:

ftop-defined_incident_response_data_request
+ ftop-defined_incident_response_data_update
+ ftop-incident_camera_action_request
+ ftop-incident_data_amendment
+ ftop-incident_information_requests

+ ftop-output_possible_defined_responses
+ ftop-request_possible_incidents_data
+ ftop-update_defined_incident_responses

ftop-lighting_system_control_parameters
This data flow is received from the traffic operations personnel and is used to request activation of an electrical lighting system along the roadside.

ftop-output_possible_defined_responses
This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains a request for output of the current contents of the store of possible defined incident responses to enable traffic operations personnel to review them to see if any should be made available for on-line use as and when incidents occur.

ftop-request_possible_incidents_data
This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains requests for the output of some or all of the data currently held in the store of possible incidents maintained by the Manage Incidents facility.

ftop-resource_request
This data flow is sent to the Manage Traffic function from the traffic operations personnel and is a request for output of the resource data contents to be used in the manage incidents data process.

ftop-reversible_lane_restriction_data
This data flow is sent by traffic operations personnel and is used to input lane restrictions (e.g., hours of operation, directionality) for reversible lanes.

ftop-roadway_characteristics
This data flow is sent from the traffic operations personnel to the Manage Traffic function. It contains analog information which includes shoulder widths, pavement types, and other general information pertaining to standard characteristics. It consists of the following data items each of which is defined in its own DDE:

shoulder_width
+ median_type
+ pavement_type
+ number_of_lanes
+ link_speed_limit

ftop-roadway_incident_input
This data flow is sent to the Manage Traffic function and enables Traffic Operations Personnel to input incident data currently held by the store of defined incident responses held by the Manage Incidents facility.

ftop-roadway_info_input
This data flow is received from the traffic operations personnel and is used to input roadway information with the use of Highway Advisory Radio HAR) data and Dynamic Message Sign (DMS).

ftop-roadway_warning_system_control
This data flow is received from the traffic operations personnel and is used to control a roadway warning system along the roadside.

ftop-static_data
This data flow is sent from the traffic operations personnel and contains items of new or amended data for the static data store which the user wishes to add to that store.

ftop-strategy_override
This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains an override for some aspect of the current method of traffic control currently being implemented.

ftop-time_dependent_operations_input
This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains traffic management strategies based on the time of day; e.g., hard shoulder use, ramp meter or traffic signal operation during rush hour.

ftop-traffic_data_parameter_updates
This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains updates to the parameters used to define the traffic data that is retrieved in response to information requests from the media and from other functions within ITS that are outside of the Manage Traffic function.

ftop-traffic_information_requests
This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains requests for traffic information to enable the personnel to review and seek clarification of the way the current traffic situation is being managed, or something which is taking place on the road or highway, etc.

ftop-update_defined_incident_responses
This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains a request for possible defined incident responses to be transferred from their store to that of the actual defined responses that will be used as and when incidents occur.

ftop-variable_speed_limit_control_parameters
This data flow is received from the traffic operations personnel and is used to provide control information to variable speed equipment at the roadway, including parameters for calculating the optimal speed limit by lane.

ftop-vehicle_signage_input
This data flow is received from the traffic operations personnel and is used to request and input information using in-vehicle signage.

ftop-vehicle_speed_sensor_control
This data flow provides control commands from Traffic Operations Personnel for a vehicle speed sensor at the roadway.

ftop-video_camera_strategy_change
This data flow contains a request for a change to the strategy of operation of a closed circuit television (cctv) system used to provide traffic surveillance data. This strategy does not cover specific camera action such as things as pan, tilt, and zoom, plus other picture controls.

ftop-weather_request_information
This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains requests for weather conditions and service information.

ft-other_services_roadside_request
This data flow is sent by the traveler to the Manage Transit function to specify other non-transit services that are needed by a traveler at the roadside, i.e., a transit stop.

ft-other_services_vehicle_request
This data flow is sent by the traveler to the Manage Transit function to specify other non-transit services that are needed by a traveler on-board a transit vehicle.

ft-personal_emergency_request
This data flow is sent from the traveler to the Provide Driver and Traveler Services function. It contains analog data from which sensors can determine that a traveler has an emergency situation that has given rise to an input from the traveler's personal device. This data must be forwarded to the Emergency Services function.

ft-personal_extra_trip_data
This data flow is sent from the traveler to the Provide Driver and Traveler Services function and contains analog data from which sensors can determine extra trip request data to supplement that already input by a traveler using a personal device. Examples of these inputs are speech, signals from relays driven by switches, buttons, etc., or input from touch screens.

ft-personal_map_display_update_request
This data flow is sent from the traveler to the Provide Driver and Traveler Services function and contains analog input from which may be determined a traveler's request for the update of the digitized map data used as the background to traffic, trip and travel information displays in a personal device. Examples of these inputs are speech, signals from relays driven by switches, buttons, etc., or input from touch screens.

ft-personal_trip_planning_requests
This data flow is sent from the traveler to the Provide Driver and Traveler Services function and contains analog inputs from which a traveler's trip request or traveler information alert subscription to a personal device may be determined. Examples of these inputs are speech, signals from relays driven by switches, buttons, etc., or input from touch screens.

ft-remote_emergency_request
This data flow is sent from the traveler to the Manage Emergency Services function and includes a silent alarm request for emergency assistance.

ft-request_advisory_information
This data flow is sent from the traveler to the Provide Driver and Traveler Services function and contains data that enables a display on-board a transit vehicle that will be capable of showing transit, yellow pages information and other traffic and travel advisory information (including non-motorized transportation services).

ftrf-traffic_data
This data flow is used within the Manage Traffic function. It contains analog data about the presence of traffic flowing on roads and highways from which traffic surveillance data such as vehicle speed, occupancy, flow volume, headway, etc. can be obtained by sensors within ITS.

ftrf-traffic_images
This data flow contains visual information (analog data) about the traffic flowing on roads and highways (and at highway rail grade crossings) from which traffic surveillance data can be obtained by image processors within ITS.

ftrf-vehicle_pollutant_levels
This data flow is used within the Manage Traffic function and represents the input from the Traffic terminator related to vehicle pollutant levels. It contains analog data from which sensors within ITS can determine the actual levels of various atmospheric pollutants, such as nitrogen oxides, sulfur dioxide, hydrocarbons, carbon monoxide and ozone, that are being produced by particular passing vehicles.

ftrf-vehicle_presence
This data flow represents the presence of a vehicle. This presence can be measured by a sensor, which allows the sensor to

create an output that can be used to identify if a vehicle has been detected.

ftrop-alert_notification_status
This data flow contains information indicating the status of the alert from the transit operations personnel including the information systems that are being used to provide the alert notification.

ftrop-approved_corrections
This data flow is sent from the transit operations personnel to the Manage Transit function and contains the transit system operator's approval for changes to transit schedules that will bring one or more transit vehicles back to their schedules.

ftrop-archive_commands
This data flow is sent from the transit operations personnel to the Manage Transit function and contains data administration commands that the Manage Transit function will use to control the archival of transit data by the Manage Archived Data function. These commands may include the data that is to be archived, how the data is processed, how the data is stored, data elements that are deleted, etc.

ftrop-coordination_data
This data flow is sent from the transit operations personnel to the Manage Transit function and contains an acknowledgment of the previous request for action plus incident coordination and response information.

ftrop-disable_transit_vehicle
This data flow is initiated by the transit operations personnel and sent to the Manage Transit function to disable a transit vehicle. Conditions where this command may occur include an incident in progress concerning the transit vehicle, such as a hijacking or armed robbery. This command would not be used for a less serious incident, such as an argument between passengers, or for a health emergency (e.g., heart attack) where the vehicle might be moving towards a hospital, or paramedics are on the way. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time
+ transit_vehicle_location

ftrop-emergency_plan_response
This data flow is sent from the transit operations personnel and is used to coordinate disaster response and recovery plans and evacuation plans with transit.

ftrop-fare_updates
This data flow is sent from the transit operations personnel to the Provide Electronic Payment Services function. It contains data identifying the transit route number, the fares for some or all or the segments on that route and the time(s)/day(s) that they apply, which are to be updated in the store of transit fares.

ftrop-initiate_service_updates
This data flow is sent from the transit operations personnel to the Manage Transit function and indicates that the transit system operator wants the transit services to be re-processed because changes have occurred to the parameters which govern their calculation.

ftrop-media_parameter_request
This data flow is sent by the transit operations personnel to the Manage Transit function and contains a request for output of the current parameters used to control the style and content of information about incidents affecting the transit network that is automatically sent to the media.

ftrop-media_parameter_updates
This data flow is sent by the transit operations personnel to the Manage Transit function and contains updates to the parameters used to control the style and content of information about incidents affecting the transit network that is automatically sent to the media.

ftrop-parking_information_request
This data flow contains a request from the transit operations personnel for dynamic parking lot information.

ftrop-passenger_loading_updates
This data flow is sent from the transit operations personnel to the Manage Transit function and contains an update to the passenger (traveler, including a user of the transit system) loading data as a result of a miss-match being found in the collected data.

ftrop-planning_parameters
This data flow is sent from the transit operations personnel to the Manage Transit function and contains planning parameters used to calculate new transit schedules.

ftrop-planning_parameters_update_request
This data flow is sent from the transit operations personnel to the Manage Transit function and contains a request for the current planning transit service planning parameters to be output to the transit system operator.

ftrop-request_fare_output
This data flow is sent from the transit operations personnel to the Provide Electronic Payment Services function. It contains a request for output of the current transit fares held in the local data store.

ftrop-request_response_parameter_output
This data flow is sent from the transit operations personnel to the Manage Transit function and is used to output the preplanned

responses to incidents by and within the transit operations area.

ftrop-request_transit_vehicle_data
This data flow is sent from the transit operations personnel to the Manage Transit function and contains a request for output of the current contents of the store of transit vehicle operational data.

ftrop-response_parameters
This data flow is sent from the transit operations personnel to the Manage Transit function and is used to provide data about planned responses to incidents by and within the transit operations area.

ftrop-security_action
This data flow is sent by the transit operations personnel to the Manage Transit function and contains details of the action needed in response to a previously identified security problem.

ftrop-technician_information_request
This data flow is sent from the transit operations personnel to the Manage Transit function and is used to request information about transit maintenance technicians.

ftrop-technician_information_updates
This data flow is sent from the transit operations personnel and is used to provide updates to the information held within the Manage Transit function about transit maintenance technicians.

ftrop-trans_weather_info_request
This data flow from the transit operations personnel contains a request for transportation weather information. This request may specify the area of interest (a geographic area, particular routes within a region, or specific road segments) or the desired type of information (e.g. temperature, roadway visibility). The request may specify observation or forecast information. For forecast information the request may specify the 'scale' of the forecast (i.e. the spatial resolution and time horizon of the forecast).

ftrop-transit_display_update_request
This data flow is sent from the transit operations personnel the Manage Transit function and is used to request an update of the digitized map database. This is used as a source of data for route generation and for the background to displays of transit services data requested by the transit system operator.

ftrop-transit_operations_inputs
This data flow contains transit operations personnel inputs that are used to manage the transit operations systems, including vehicle locations, transit vehicle service status, transit vehicle maintenance data, transit vehicle operating data, and updates relating to transit vehicle operator authentication.

ftrop-transit_services_output_request
This data flow is sent from the transit operations personnel to the Manage Transit function and is used to request output of the current transit services. This data is produced by the transit route and schedule generation processes in the Manage Transit function.

ftrop-transit_vehicle_inventory_input
This data flow contains the inputs from the transit operations personnel to manage and update the inventory of vehicles and their assignments to a route based on the vehicle availability.

ftrop-transit_vehicle_maintenance_information_request
This data flow is sent from the transit operations personnel to the Manage transit function and contains a request for information about the maintenance status of an individual transit vehicle.

ftrop-transit_vehicle_maintenance_specs
This data flow is sent from the transit operations personnel to the Manage transit function and contains a new or revised transit vehicle maintenance specification. This will be loaded into the store of transit vehicle operations data.

ftrop-transit_vehicle_maintenance_updates
This data flow is sent from transit operations personnel to the Manage Transit function and is used to provide updates to the maintenance information being held within the function about individual transit vehicles.

ftrop-transit_vehicle_operator_information_request
This data flow is sent from the transit operations personnel to the Manage Transit function and contains a request for the output of the consideration data about one or more transit vehicle operators.

ftrop-transit_vehicle_operator_information_updates
This data flow is sent from the transit operations personnel to the Manage Transit function and contains an update of the consideration data for a particular transit vehicle operator. This includes matching the operator to a vehicle on a day to day basis.

ftrop-transit_vehicle_operator_route_preferences
This data flow is sent from the transit operations personnel to the Manage Transit function and is used to provide information about the preferences that transit vehicle operators have about working over certain transit routes.

ft-secure_transit_vehicle_emergency_request
This data flow is sent from the traveler on-board a transit vehicle to the Manage Emergency Services function and includes a silent alarm request for emergency assistance.

ftsp-emergency_travel_service_update

This data flow is sent from the information and services provider to the Provide Driver and Traveler Services function. It provides updates to information on travel services as situations change during an emergency, including disasters and evacuation scenarios. The types of service update information being sent include adjustments to availability of services, changes in hours, etc.

ftsp-provider_profile_update

This data flow is used to update the current travel service provider profile. This update could be in the form of a change to provider information or services, or could be the deletion of the provider from the database.

ftsp-request_provider_registration

This data flow is sent to the Provide Driver and Traveler Services function from the information and service provider to request registration as a provider of travel services data. The data flow includes details of the provider, credit identity of the provider, geographic area for which data can be provided and available travel services.

ftsp-transaction_confirmation

This data flow is sent by the information and service provider to the Provide Driver and Traveler Services function and contains confirmation that a transaction or reservation requested by a traveler has (or has not) successfully taken place.

ftsp-travel_services_data

This data flow is sent from the information and services provider to the Provide Driver and Traveler Services function. It provides information on travel services in three forms comprising that of general interest, more specific items and transaction information.

ftsti-telecomm_batch_regional_info_request

This data flow is sent from the Telecommunications System for Traveler Information terminator to the Provide Driver and Traveler Services function. It contains a region-specific request for a batch upload of traveler information data. This request will also be used to sort and filter the data. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_telecomm_travel_services_data_request
+ traveler_telecomm_information_request
+ traveler_telecomm_emergency_information_request
+ region_identity

ftsti-telecomm_caller_request

This data flow is sent from the Telecommunications System for Traveler Information terminator to the Provide Driver and Traveler Services function. It contains a traveler information request resulting from a traveler call, and may be specially formatted for voice-based traveler requests. The telecommunications-based system will specify the region for which information is requested. This request will also be used to sort and filter the data. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_telecomm_travel_services_data_request
+ traveler_telecomm_information_request
+ traveler_telecomm_emergency_information_request
+ region_identity
+ information_request_id

ft-transit_information_request

This data flow is sent by the traveler to the Manage Transit functions to request information on transit services from a kiosk or other information point.

ft-traveler_roadside_image

This data flow is used within the Manage Transit function and contains analog information from which sensors can produce an image of the traveler when a fare transaction violation has been detected at the roadside. The size estimate represents a digitized equivalent of the analog image.

ft-traveler_vehicle_image

This data flow contains analog information from which sensors can produce an image of the traveler when a fare transaction violation has been detected on-board the transit vehicle.

ft-trip_planning_requests

This data flow is sent from the traveler to the Provide Driver and Traveler Services function and contains analog inputs from which a traveler's trip request to a kiosk may be determined. Examples of these inputs are speech, signals from relays driven by switches, buttons, etc., or input from touch screens.

ftvo-fare_transaction_mode_set_up

This data flow is sent from the transit vehicle operator to the Manage Transit function. It contains the mode in which the transit fare transaction processing on-board the transit vehicle is to operate. This may be either batch mode (part processing of each fare transaction carried out and the details of a large number of transactions transferred to the central function for further processing) or interactive mode (complete processing of each transaction carried out without stopping).

ftvo-information_updates

This data flow is sent from the transit vehicle operator to the Manage Transit function. It contains information from individual transit vehicle operators about their previous work hours and vacations, etc. It is used to assess an operator's eligibility for future work assignments.

ftvo-paratransit_status

This data flow is sent from the transit vehicle operator to the Manage Transit function. It contains status of demand responsive or flexible-route services as and when they are provided to travelers. This data also includes input from the transit vehicle operator concerning paratransit schedules and passenger loading.

ftvo-request_batch_mode_data_transfer

This data flow is sent from the transit vehicle operator to the Manage Transit function. It contains a request that the current contents of the store of transit fare transactions be transferred to processes in the Provide Electronic Payment Services function for further processing.

ftvo-request_logon_authentication

This data flow is used by processes within the Manage Transit function. It contains the request to authenticate the transit vehicle operator to the transit vehicle when he attempts to logon to the vehicle. This data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_location
+ transit_vehicle_identity
+ transit_vehicle_operator_identity

ftvo-secure_transit_vehicle_emergency_request

This data flow is sent from the transit vehicle operator on-board a transit vehicle to the Manage Emergency Services function to indicate that an emergency has occurred on-board o near a transit vehicle. The data flow includes a silent alarm request for emergency assistance.

ftvo-secure_transit_vehicle_surveillance_control

This data flow is sent from the transit vehicle operator on-board a transit vehicle to the Manage Emergency Services function and contains control parameters for closed circuit television (cctv) and audio systems located on-board the vehicle.

ftvo-transit_service_status

This data flow is sent from the transit vehicle operator to the Manage Transit function. It provides input from the transit vehicle operator concerning transit schedules, passenger loading, and other service status.

fwe-approaching_train_announcement

This data flow is a real-time notification to the HRI that a train is approaching a specific grade crossing.

fwe-train_data

This data flow contains time critical data about an approaching train and is provided to HRI at the roadside by railroad owned and maintained equipment and/or communications networks. This data, if available, will be provided concurrently with the approaching train announcement and must include data sufficient for the HRI to determine crossing close time, and the anticipated closing duration. A train identification is required to allow the HRI to manage multiple train arrivals at a single crossing within short time intervals.

fwe-wayside_equipment_status

This data flow allows the railroad operated and maintained equipment to verify its operational status to dependent HRI processes. This can be as simple as a binary indication of status, to a full maintenance report.

fws-current_weather_observations

This data flow contains current weather observations, e.g. temperature, pressure, wind parameters , humidity, precipitation, visibility, light conditions, lightning data, radar data, etc. and weather observation attributes (or meta data). This data flow consists of the following data items each of which is defined in its own DDE:

current_weather_observations
+ weather_observation_attributes

fws-env_sensor_data_for_isp

This data flow provides outputs from a set of quality checked environment sensors. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes
+ environment_sensor_quality_checks}

fws-env_sensor_data_for_maint

This data flow provides outputs from a set of quality checked environment sensors. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes
+ environment_sensor_quality_checks}

fws-env_sensor_data_for_traffic

This data flow provides outputs from a set of quality checked environment sensors. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes
+ environment_sensor_quality_checks}

fws-maintenance_environment_sensor_data_status

This data flow provides the results of the quality check process for environmental sensor data provided by the Manage Maintenance and Construction function. The results may be in the form of individual assessment of sensor quality, or provide statistical information on the quality of the sensor data provided.

fws-roadway_env_sensor_control

This data flow provides control commands for environmental sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environmental_sensor_control}

fws-traffic_environment_sensor_data_status

This data flow provides the results of the quality check process for environmental sensor data provided by the Manage Traffic function. The results may be in the form of individual assessment of sensor quality, or provide statistical information on the quality of the sensor data provided.

fws-weather_and_env_data_for_archive

This data flow from the Weather Service terminator to the Manage Archived Data function contains a catalog and details of weather data and quality checked environmental sensor data that may be of interest to the archive data users systems that cannot be obtained directly from ITS functions. This data flow contains the following items each of which is defined in its own DDE:

weather_and_env_data_archive_catalog
+ weather_data_for_archive
+ env_sensor_data_for_archive

fws-weather_forecasts

This data flow contains forecasts of weather variables, including temperature, pressure, wind speed, wind direction, humidity, precipitation, visibility, and light conditions as well as forecast data attributes. This data flow also contains advisories, watches, or warnings for weather related events. The weather forecasts are classified by meteorological scales, each of which cover a range of time and a range of space. The scales are miso (timescale of minutes to an hour before the event and horizontal scale of meters to a kilometer), meso (timescale of several hours before an event and horizontal scale of one to 100 kilometers), synoptic (a timescale of 12 hour to several day horizon and a horizontal scale of 100 to 5000 kilometers) and climatic (a timescale beyond synoptic and a horizontal scale greater than 5000 kilometers). This data flow consists of the following data items each of which is defined in its own DDE:

miso_scale_weather_forecasts
+ meso_scale_weather_forecasts
+ synoptic_scale_weather_forecasts
+ climatic_scale_weather_forecasts
+ weather_scale_forecast_data_attributes

G

geofence_data_for_tracking

This data flow contains information about road segments and areas (surrounded by road segments) that do not allow the transport of security sensitive cargoes. These segments and areas may be any combination of locally and remotely identified links and areas. The data flow consists of the following data item which is defined in its own DDE:

geographical_area

geographical_area

This data flow defines a geographical area or region, and is based on accepted standards for location referencing.

get_charge_payment_violator_image

This data flow is used within the Provide Electronic Payment Services function and contains data fields which if set non-zero act as a request that the image of the vehicle currently trying to pay a parking lot charge be obtained as the payment transaction has been found to be illegal. It consists of the following data items each of which is defined in its own DDE :

credit_identity
+ vehicle_identity

+ parking_lot_cost

get_fare_violator_payment_image

This data flow is used within the Provide Electronic Payment Services function and contains a data fields which if set non-zero act as request that the image of the traveler currently trying to pay a transit fare be obtained as the payment transaction has been found to be illegal. If the transaction is at the roadside the identity of the transit vehicle will be set to zero, and if on a vehicle the fare collection identity will be set to zero. For vehicle collection, the collection method data will show whether a batch or interactive method is being used for processing the fare collection data. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ transit_fare
+ transit_roadside_fare_collection_identity
+ transit_route_number
+ transit_route_segment_number
+ transit_route_use_time
+ traveler_category
+ transit_vehicle_fare_collection_method
+ transit_vehicle_identity
+ traveler_identity

get_other_route

This data flow is used within the Provide Driver and Traveler Services function to enable the selection of routes that only involve modes other than those using vehicles or transit services. It consists of the following data items each of which is defined in its own DDE:

origin
+ destination
+ departure_time
+ desired_arrival_time
+ modes
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ preferred_weather_conditions
+ constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_special_needs

get_parking_lot_vehicle_payment_violator_image

This data flow is used within the Provide Electronic Payment Services function to request that the image of the vehicle currently entering a parking lot be obtained as its vehicle payment device cannot be correctly read.

get_toll_payment_violator_image

This data flow is used within the Provide Electronic Payment Services function and contains data fields which if set non-zero acts as a request for the image of the vehicle currently trying to pay a toll be obtained as the payment transaction has been found to be illegal. It consists of the following data items each of which is defined in its own DDE :

credit_identity
+ vehicle_identity
+ toll_cost

get_toll_vehicle_payment_violator_image

This data flow is used within the Provide Electronic Payment Services function to request that the image of the vehicle currently entering a toll plaza be obtained as its vehicle payment device cannot be correctly read.

get_transit_route

This data flow is used within the Provide Driver and Traveler Services function. It contains data that enables the selection of a route using only transit services, as part of a traveler's trip request. The data flow consists of the following data items each of which is defined in its own DDE:

origin
+ destination
+ departure_time
+ desired_arrival_time
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ preferred_weather_conditions
+ preferred_transit_options
+ constraint_on_acceptable_travel_time
+ constraint_on_number_of_mode_changes
+ constraint_on_number_of_transfers
+ constraint_on_eta_change

+ constraint_on_special_needs

get_vehicle_route

This data flow is used within the Provide Driver and Traveler Services function to enable a route to be selected that only involve the use of vehicles, excluding transit vehicles, i.e. private cars, vans, commercial vehicles, emergency vehicles, etc. It consists of the following data items each of which is defined in its own DDE:

constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_special_needs
+ constraint_on_load_classification
+ constraint_on_avo_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type
+ destination
+ departure_time
+ desired_arrival_time
+ origin
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ preferred_weather_conditions

global_schema

This data flow from the Coordinate Archives function contains the definition of the archives that are managed by similar Manage Archived Data functions that have made the data available to local user systems. The global schema defines the structure of various archive databases, including information such as the definition of objects within a database or how tables of data are related to each other as in a relational database. The global schema would also define the information necessary to locate information spread across geographical boundaries as in a distributed archive model. The global schema is used to support mining and fusion activities of data across multiple archives.

government_report_data

This data flow from the Manage Archive function to the Prepare Government Reporting Inputs function. This data flow contains the meta data and data from the archive that can be used to prepare the input to Government reporting systems. The data will allow user defined products to be generated for systems that include Highway Performance Monitoring System (HPMS), Truck Weight Study/VTRIS, National Bridge Inventory, Fatal Accident Reporting System (FARS), Highway Safety Information System (HSIS), Section 15 Transit Data, Motor Carrier Management Information System (MCMIS), Hazardous Materials Incident Reporting System, Grade Crossing Inventory System (GCIS), and Railroad Accident/Incident Reporting System (RAIRS; grade crossing portion).

government_report_data_request

This data flow within the Manage Archived Data function contains the request for archived data from the Manage Archive function which can be used as input to fulfill reporting requirements of certain government reporting systems.

guidance_data

This data flow is used within the Provide Driver and Traveler Services function to transfer data between the Manage Trip Planning and Ridesharing facility and the Provide Guidance and Trip Planning Services facility. It consists of the following data items each of which is defined in its own DDE:

paratransit_route_response
+ trip_route_request

guidance_probe_data_from_vehicle

This data flow is used within the Provide Driver and Traveler Services function and contains the time at which a vehicle was at a route segment end point. This data will be used to calculate the actual vehicle journey time for the route segment which may supplement or replace data gathered from other sources. The data flow consists of the following data items each of which is defined in its own DDE:

route_segment_identity
+ time
+ vehicle_identity

H

hand_off_coordination

This data flow coordinates a positive hand off of responsibility for all or part of an incident response between agencies. It identifies both agencies, the incident, the portion of the response to be handed off, and other information. Many types of transactions will support the negotiation and transfer of responsibility indicated by this flow. The requirement is that the transaction be positive and unambiguous so that both parties can positively determine that a transfer of responsibility has occurred.

handicap_access_information

This data flow is used to indicate the handicap access level for a business, event, or any other establishment.

har_data

This data flow contains the HAR data, both program and management, used to define the output of a Highway Advisory Radio (HAR) operating at the roadside in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

har_identity
+ har_program
+ har_management_data
+ har_data_for_evacuation

har_data_for_evacuation

This flow contains information regarding the evacuation to be sent to a highway advisory radio for distribution to the traveler. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule

har_data_from_m_and_c

This data flow contains the HAR data, both program and management, used to define the output of a Highway Advisory Radio (HAR) operating at the roadside in the geographic and/or jurisdictional area(s) served by the Manage Maintenance and Construction function. It consists of the following data items each of which is defined in its own DDE:

har_identity
+ har_program
+ har_management_data

har_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of the Highway Advisory Radio for the Manage Maintenance and Construction function. This status also includes an indication of the current program being broadcast, and an indication of the space available for storing messages/programs on the device. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

har_identity

This data flow contains a numerical identifier of an individual Highway Advisory Radio device.

har_management_data

This data flow contains the definition of a Highway Advisory Radio mode and program schedule. It consists of the following data items each of which is defined in its own DDE:

har_mode+
har_schedule

har_mode

This data flow contains the definition of the mode of the Highway Advisory Radio. The possible modes are idle, override current schedule with this program, run schedule, or play thru.

har_program

This data flow contains the definition of a Highway Advisory Radio program to be broadcast within a local area. The program can be defined by a program number or id, or by a sequence of messages (or sound bites).

har_schedule

This data flow contains the definition of a Highway Advisory Radio program schedule. This schedule defines a sequence of programs and start times for the programs.

har_status

This data flow provides the operational status (state of the device, configuration, and fault data) of the Highway Advisory Radio for the Manage Traffic function. This status also includes an indication of the current program being broadcast, and an indication of the space available for storing messages/programs on the device. It consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ station_id
+ device_identity

har_status_for_m_and_c

This data flow contains the operational status (state of the device, configuration, and fault data) of the highway advisory radio. This status includes an indication of the current program being broadcast and an indication of the space available for storing

messages/ programs on the device. It consists of data the following DDE:

station_id
+ device_identity
+ roadside_device_status

har_wide_area_alert_information
This data flow is used within the Manage Traffic function and contains alert details pertaining to major emergencies, man-made disasters, civil emergencies, or child abductions that are to be broadcasted to drivers and pedestrians with the use of a Highway Advisory Radio program. The program can be defined by a program number or id, or by a sequence of messages (or sound bites).

hazard_condition
This data flow provides information from the Detect HRI Hazards process that defines the HRI hazard, potential hazards, and related HRI conditions.

hazmat_load_data
This data flow contains the manifest data plus the chemical characteristics of a hazmat load being carried by a commercial vehicle. This data is used by the emergency services to plan their responses if the vehicle on which the load is traveling is involved in an incident.

hazmat_route_restrictions
This data flow contains road segments and areas (surrounded by road segments) that do not allow the transport of security sensitive hazmat cargoes. The data flow consists of the following items each of which is defined in its own DDE:

geographical_area

hazmat_vehicle_data
This data flow contains details such as make, type, towing points, etc. of a vehicle that is carrying a hazardous load. This is used by the emergency services to plan their responses if the vehicle is involved in an incident.

hazmat_vehicle_information
This data flow contains information about hazardous materials on-board a commercial vehicle and details of the vehicle itself. The data flow consists of the following data items each of which is defined in its own DDE:

hazmat_load_data
+ hazmat_vehicle_data

hazmat_vehicle_route
This data flow contains routing and cargo information for a vehicle carrying a hazardous material load. The data flow consists of the following data items each of which is defined in its own DDE:

cv_route_number
+ cv_route_data
+ freight_cargo_data
+ freight_equipment_id

headway
This data flow is used within the Provide Vehicle Monitoring and Control function. It contains the distance between the vehicle and the vehicle in front in a platoon (headway) as computed from on-board sensors.

highway_closures
This data flow contains the current status of links in the highway system. Included are both links that are currently not available for use on the highway system and those links that remain open. The data flow consists of the following data item which is defined in its own DDE:

link_status

highway_control_devices
This data flow is used within the Manage Traffic function and includes information about each device used to output traffic management commands to vehicle drivers on highways. Data for devices at highway entry ramps is provided separately. This data flow consists of the following data items each of which is defined in its own DDE:

crossing_equipment_data_for_highways
+ highway_equipment_data

highway_equipment_data
This data flow is used within the Manage Traffic function and provides information about each highway indicator that is used to provide traffic management commands to drivers. The data flow consists of the following items each of which is defined in its own DDE:

list_size
+ list_size{dms_upstream_identity
    + dms_downstream_identity}
+ dms_allocation

highway_network

This data flow is used within the Manage Traffic function and contains data about each segment in the highway network and the way in which they fit together, i.e. which segment is joined to which, both upstream and downstream, plus identification of those links that interface to the road (surface street) network. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{route_segment_downstream_identity
    + route_segment_end_point
    + route_segment_identity
    + route_segment_start_point
    + route_segment_upstream_identity
+ turning_movements}

highway_sign_plan_data

This data flow is used within the Manage Traffic function and contains data about the highway indicator sequence(s) needed to implement a specific traffic management control strategy in part of the highway in the geographic and jurisdictional area(s) served by the Manage Traffic function. A strategy can be anything from setting a speed restriction, to closing a single lane, to closing the whole highway. It may be either designed to suit specific locations on the highway network (lane closures), or for general application (speed restrictions). The data flow consists of the following data items each of which is defined in its own DDE:

highway_sign_plan_purpose
+ highway_sign_sequence_data
+ highway_sign_plan_priority

highway_sign_plan_number

This data flow contains the number of an adaptive plan for the road network controlled by the function. A plan is a set of data that enables a set of sign sequences to be applied to highway indicators to achieve a desired traffic control strategy.

highway_sign_plan_priority

This data flow is used within the Manage Traffic function and contains data about the relative priority of each highway sign plan.

highway_sign_plan_purpose

This data flow is used within the Manage Traffic function which defines the purpose of highway sign plans. These codes include, but not be limited to data such as close highway I695 at exit 157 northbound, set 40 mph speed limit on highway I475 southbound (may apply anywhere), close the right two lanes on highway I895 from exit 133 eastbound.

highway_sign_sequence_data

This data flow is used within the Manage Traffic function and contains data about the sequence in which a set of highway indicators must be set in order to implement a specific action, e.g. close one lane, set a speed restriction, etc. The sequences are designed to enable the action to implemented safely, e.g. a speed restriction of 40 mph could be preceded by warnings that it starts 'x' feet farther along the highway, where 'x' is the distance from the indicator to the start of the speed restriction. Sequences are not location specific and are standard for a particular action. The data flow consists of the following data items each of which is defined in its own DDE:

highway_sign_sequence_purpose
+ indicator_list

highway_sign_sequence_purpose

This data flow is used within the Manage Traffic function and contains codes which defines the purpose of a highway sign sequence, such as close one lane, close right-hand (nearside) lane, close center lane, close left-hand (offside) lane, close two lanes, close three lanes, close all lanes, i.e. close the highway in one direction, set 40 mph speed limit (from higher limit), set 50 mph speed limit (from higher limit), set 40 mph speed limit (from no limit).

highway_sign_setting_data

This data flow is used within the Manage Traffic function and contains sets of sequences for setting indicators on a highway to implement specific functions, e.g. close one lane, set a speed restriction, etc. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{highway_sign_sequence_data}

highway_sign_setting_plans

This data flow is used within the Manage Traffic function and contains data about highway indicator plans that are used to implement specific actions. These are designed to enable the management of a variety of situations on the highway(s) in the geographic and jurisdiction area(s) served by the Manage Traffic function. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{highway_sign_plan_data
    + highway_sign_plan_number}

historical_incident_details

This data flow is used within the Manage Traffic function and contains the details of a historical incident. It consists of the following data items each of which is defined in its own DDE:

incident_description
+ incident_duration
+ incident_location
+ incident_number
+ incident_severity
+ incident_start_time
+ incident_traffic_impact
+ incident_type

historical_other_routes_use

This data flow is used within the Provide Driver and Traveler Services function and contains historical data about the non-vehicle portion(s) of routes that have been requested by travelers. These route portions will involve the use of modes such as cycling, walking, etc. The data will be stored in ascending route segment number order (i.e. from 1 to the maximum number of route segments), and consists of the following data items each of which is defined in its own DDE:

route_segment_total_number
+ route_segment_total_number{route_segment_identity
+ time_period{route_segment_guided_travelers}
+ route_segment_journey_time}

historical_parking_lot_storage_data

This data flow is used within the Manage Traffic function and contains occupancy and state data for all the parking lots in the geographic area served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_current_occupancy
+ parking_lot_identity
+ parking_lot_state}

historical_pollution_state_area_collection

This data flow is used within the Manage Traffic function and contains the historical states of the various types of pollution within the atmosphere in the geographic area served by the function. It also contains a summary indication of the area air quality. It consists of the following data items each of which is defined in its own DDE:

current_ozone_pollution
+ current_nitrogen_oxides_pollution
+ current_sulfur_dioxide_pollution
+ current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution
+ current_particulate_pollution
+ current_pollution_location
+ area_air_quality_index

historical_pollution_state_roadside_collection

This data flow contains the digitized values of pollution levels obtained from roadside sensors in the geographic area served by the function. It consists of the following data items each of which is defined in its own DDE:

current_ozone_pollution
+ current_nitrogen_oxides_pollution
+ current_sulfur_dioxide_pollution
+ current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution
+ current_particulate_pollution
+ current_roadside_pollution_location

historical_processed_roadway_env_data

This data flow is used within the Manage Traffic function and contains environmental sensor data that has been processed ready for storage in both the current and historical data stores. It consists of the following item which is defined in it own DDE:

roadway_environment_conditions

historical_processed_traffic_data

This data flow is used within the Manage Traffic function and contains traffic sensor data that has been processed ready for storage in both the current and historical data stores. It consists of the following items each of which is defined in it own DDE:

parking_lot_input_data +
o_d_matrix + private_vehicle_occupants
+ ramp_data
+ strategy_data
+ link_state_data

+ hri_state_data
+ reversible_lane_data

historical_stored_incident_data

This data flow is used within the Manage Traffic function to transfer data about historical incidents from the Incident Management facility to the Provide Traffic Surveillance facility for storage. It contains the following data items each of which is defined in its own DDE:

list_size
+ list_size{historical_incident_details}

historical_traffic_flow_state

This data flow is used within the Manage Traffic function. It contains data showing the current traffic flow conditions on roads (surface streets), freeways and ramps served by the function. It also includes flows in high occupancy vehicle (hov) lanes from the same area. The data is a subset of that in the current and historical data stores and is used as a means of 'packaging' the data for distribution to users such as ISP's. The data flow consists of the following data items each of which is defined in its own DDE:

ramp_signal_state
+ current_roadway_network_data
+ current_road_network_use
+ hov_lane_data
+ link_data_from_tags

historical_traffic_management_storage_data

This data flow is used within the Manage Traffic function. It contains the indicator control and response states plus the selected traffic control strategy(ies) for the road (surface street) and highway network served by the function. The data is a subset of that in the current and historical data stores. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_control_storage_data
+ indicator_input_storage_data
+ selected_strategy

historical_wide_area_pollution_data

This data flow is used within the Manage Traffic function as a means of transferring historical pollution data from the Manage Emissions facility to the Provide Traffic Surveillance facility. It contains data about the historical levels of pollution obtained from the store of pollution data in the area covered by the Traffic Management Center (TMC) and consists of the following data items each of which is defined in its own DDE:

historical_pollution_state_area_collection
+ list_size
+ list_size{historical_pollution_state_roadside_collection}

hov_lane_data

This data flow is used within the Manage Traffic function and contains the data obtained from processing the inputs from traffic sensors located on High Occupancy Vehicle (HOV) lanes around the road network. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{hov_lane_vehicle_count
    + hov_lane_violation_count}

hov_lane_data_input

This data is used within the Manage Traffic function and contains data from which the use of High Occupancy Vehicle (HOV) lanes can be monitored. It consists of the following data items each of which is defined in its own DDE:

private_vehicle_occupants
+ traffic_video_image
+ vehicle_count

hov_lane_identity

This data flow is used within the Manage Traffic function to identify individual high occupancy vehicle (hov) lanes used for the control of traffic on roads (surface streets) and highways. The data flow consists of the following data items each of which is defined in its own DDE:

unit_number
+ location_identity

hov_lane_list

This data flow is used within the Manage Traffic function and contains a list of high occupancy vehicle (hov) lanes to which the accompanying data applies. It consists of the following data items each of which is defined by its own DDE:

list_size
+ 1{hov_lane_identity}list_size

hov_lane_restriction_data
This data flow contains lane restriction data (e.g., hours of operation) for high-occupancy vehicle (hov) lanes.

hov_lane_restriction_data_for_enforcement
This data flow, used for enforcement, contains lane restrictions (e.g., hours of operation) for high-occupancy vehicle (hov) lanes.

hov_lane_vehicle_count
This data flow contains a count of the number of vehicles legitimately using High Occupancy Vehicle (HOV) lanes in the road and highway network served by the function. The count shows the actual number of vehicles in a lane, which is not the same as the vehicle flow rate.

hov_lane_violation
This data flow is sent by the Manage Traffic function to the Manage Emergency Services function and contains data about vehicles that do not have the required number of occupants to legitimately use a High Occupancy Vehicle (HOV) lane. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ vehicle_license
+ private_vehicle_occupants

hov_lane_violation_count
This data flow contains the a count of the number of vehicles illegally using High Occupancy Vehicle (HOV) lanes in the road and highway network. The count shows the actual number of illegal vehicles in a lane, which is not the same as the illegal vehicle flow rate, although this can be calculated as an average from successive values of this data flow.

hov_priority
This data flow is used within the Manage Traffic function and contains data about the number of vehicles using high occupancy vehicle (hov) lanes. Data is included about vehicles that are both legal and illegal users. The data flow consists of the following items each of which is defined in its own DDE:

hov_lane_list
+ 1{hov_lane_data}list_size

hov_sensor_data
This data flow is used within the Manage Traffic function and contains the HOV data obtained from processing the inputs from sensors around the road network. It consists of the following data items each of which is defined in its own DDE:

link_list
+ 1{private_vehicle_occupants
    + hov_priority}list_size

hov_sensor_equip_status_for_m_and_c
This data flow provides the operational status (state of the device, configuration, and fault data) of an HOV sensor for the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

hov_sensor_status
This data flow provides the operational status (state of the device, configuration, and fault data) of an HOV sensor for the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

hri_advisory
This data flow provides non-time critical warning data for HRI users. It is generated by the Generate Alerts and Advisories process for reporting by the Report Alerts and Advisories process.

hri_alert
This data flow provides time critical warning data for HRI users. It is generated by the Generate Alerts and Advisories process for reporting by the Report Alerts and Advisories process.

hri_blockage
This data flow contains information, obtained from sensors in the intersection, regarding blockage of the HRI by a vehicle or other object. This data will be passed to Rail Operations.

hri_closure_data
This store contains a log of all HRI closings over a fixed period for use in strategy planning, travel demand management etc.

hri_closure_data_response
This data flow represents an historical log of HRI closure data.

hri_control_message
This data flow is consists of HRI device operation instructions designed to implement a specific control plan as determined by the Execute Local Control Strategy process.

hri_coordination_for_tms
This is a data flow used within the HRI service to coordinate grade crossing operations with overall traffic operations. It conveys data from processes within the HRI service to processes responsible for managing overall traffic operations. The reciprocal flow is named tms_coordination_data_for_hri.

traffic_management_request
+ hri_traffic_data

hri_data_for_roads
This data flow is used within the Manage Traffic function and contains data about each railroad grade crossing so that closure of the crossing to road traffic can be properly implemented when needed. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{crossing_id
    + hri_phase_data}

hri_data_for_signage_from_roadway
This data flow contains data for use in producing in-vehicle signage displays pertaining to the status of a nearby Highway Rail Intersection (HRI) or train crossing. The data may include time a crossing is expected to close or an indication that an intersection is blocked.

hri_device_control
This data flow controls the state of traffic control devices at a local HRI by passing the required control actions to the Manage Device Control process in the Manage Traffic function.

traffic_device_control
+ hsr_device_control
+ ssr_device_control
+ barrier_device_control

hri_device_control_data
This data flow represents health monitoring and status information about controls and signals at highway-rail grade crossings. It is provided by the Provide Device Control process as feedback and is used to determine the state of devices at the HRI. It is also used by HRI to trigger alerts to rail crews of any potential hazards resulting from equipment malfunctions, system anomalies, etc. It consists of the following data items each of which is defined in its own DDE:

indicator_sign_control_data_for_hri
+ hri_device_sense

hri_device_sense
This data flow provides sensor data, acquired by traffic surveillance at grade crossings and/or adjacent intersections that is relevant to the local control plan at the HRI.

hri_device_status
This data flow represents the current status of the devices used at an HRI and includes pertinent information relative to wayside equipment status. It is used to determine the overall health and status of the HRI by the Monitor HRI Status process.

hri_equip_status_for_m_and_c
This data flow provides the operational status (state of the device, configuration, and fault data) of the equipment at highway-rail intersections for the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can assess the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status
+ hri_closure_data_response
+ hri_state

hri_guidance_for_roadway_info
This data flow is used to control the messages is to be displayed and output on a dynamic message sign (DMS), highway advisory radio (HAR), or in-vehicle signage as drivers approach an HRI.

hri_hazard
This data flow represents is used by the Control Vehicle Traffic at active HRI to conditionally open or positively close the HRI to

vehicular traffic.

hri_incident_data
This is a data flow used to inform the Manage Incidents process about an incident at an HRI.

hri_phase_data
This data flow contains data about the way in which each railroad grade crossing and interlocked intersection(s) operate, i.e. the minimum and maximum phase timings, phase change timings, etc.

hri_predicted_collision
This data flow represents the predicted state of the roadway at an HRI and includes pertinent information that can be used to anticipate probable train/vehicle collisions.

hri_priority_message
This data flow provides urgent information from HRI to rail operations via the Exchange Data with Rail Operations process and reflects HRI generated alerts and advisories. The information provided would include notification of a HAZMAT spill, equipment failure, or an intersection blockage.

hri_rail_alert
This data flow represents an alert that the Manage HRI Rail Traffic process has alerted rail traffic to an immediate hazard.

hri_reporting_data
This data flow contains data required to formulate a wayside response to an approaching train at an active grade crossing. At a minimum it indicates the health of the HRI equipment as a binary function.

hri_request_for_device_control
This data flow represents real-time train indications and local control preemptions for the ITS Provide Device Control process as well as DMS control instructions from the Manage HRI Vehicle Traffic process at highway-rail grade crossings to the ITS Output Control Data process.

hri_guidance_for_roadway_info
+ train_sense_data
+ hri_device_control
+ hri_data_for_signage_from_roadway

hri_sensor_data
This data flow provides sensor data, acquired by HRI at grade crossings, that is relevant to the overall traffic surveillance functions of ITS (e.g. grade crossing rail traffic). It contains HRI closure data, status data, and other HRI information. This data flow consists of the following items each of which are defined in its own DDE:

hri_status
+ closure_event_data
+ intersection_blocked
+ rail_schedules_data

hri_sign_control_data
This data flow is used within the Manage Traffic function and contains the actual data for use by indicators that are dynamic message signs (DMS) and other types of signs or indicators at railroad grade crossings served by the function.

hri_state
This data flow represents the complete state of an HRI as determined by monitoring the status of the track, traffic and equipment.

hri_state_data
This data flow is used within the Manage Traffic function and contains data about the state of the highway rail intersections as determined by processing the HRI sensor data.

hri_status
This data flow provides the operational status (state of the device, configuration, and fault data) of the equipment at highway-rail intersections (HRI). The data also includes the train situation, vehicle traffic, and predictable near term events. It consists of the following data items each of which is defined in its own DDE:

hri_state
+ hri_closure_data_response
+ roadside_device_status
+ station_id
+ device_identity

hri_status_for_traffic_demand
This data flow contains data to be used by the Manage Travel Demand process to coordinate its overall operations with grade crossing activity and predicted activities.

hri_strategy_override
This data flow is used by Traffic Management to preempt the local control plans of an HRI.

hri_surveillance_data

This data flow provides surveillance information, acquired by HRI at grade crossings, that is relevant to the overall traffic surveillance functions of ITS (e.g. grade crossing vehicle traffic, detected incidents, etc. It consists of the following data items each of which is defined in its own DDE:

hri_sensor_data
+ rail_schedules_for_prediction

hri_traffic_data

This data flow contains data to be used by traffic management to coordinate its overall operations with the HRI activity.

hri_traffic_surveillance

This data flow represents the various traffic sensor inputs to HRI from the Traffic Surveillance processes.

hsr_control_request

This data flow requests specialized control device activation at a grade crossing identified as a suitable for High Speed Rail service.

hsr_device_control

This data flow controls the state of specialized control devices at a grade crossing identified as a suitable for High Speed Rail service.

hsr_device_control_state

This data flow contains the state of specialized control devices at a grade crossing identified as a suitable for High Speed Rail service.

I

identified_emergency_details

This data flow is used within the Manage Emergency Services function. It contains details of an emergency that have been identified by inputs to a process within the function. The data flow consists of some or all or the following data items each of which is defined in its own DDE:

incident_confidence_level
+ incident_description
+ incident_duration
+ incident_location
+ incident_number
+ incident_report_source
+ incident_reported_time
+ incident_severity
+ incident_start_time
+ incident_traffic_impact
+ incident_type
+ incident_status

image_for_analysis

This data flow is used within the Manage Emergency Services function and contains surveillance video data from secure areas inside or outside the local area of operation. This flow includes high resolution video images and data produced by processing those images. The image data is obtained from areas frequented by travelers, and from areas typically away from travelers. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ transit_vehicle_location
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image
+ secure_area_images
+ secure_video_image_data

image_id

This data flow is used within the Emergency Services function to analyze and disseminate information about surveillance video images. The images are checked against a database of known images (criminal elements). The data flow contains the identity of an image that is being analyzed against this data.

image_match_confirmation

This data flow is used within the Emergency Services function to indicate whether image matching analysis of a video image obtained from a surveillance camera was successful or not. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag

image_match_potential_confirmation

This data flow is used within the Emergency Services function to indicate whether analysis of a video image obtained from a surveillance camera was successful or not. Emergency Services sends an indication of a potential image match to the Alert and Advisory System, which then confirms or denies the match. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag

image_match_process_parameters

This data flow contains parameters to define how the surveillance video image data collected from secure areas (frequented by travelers, such as transit stops, rest areas, park and ride lots, etc., or away from travelers, such as tunnels and bridges, etc.) for use in image matching analysis is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing in the field and may include the timeframe in which to search, the image characteristics that are to be analyzed, the location, etc.

image_matching_analysis_results

This data flow is used within the Manage Emergency Services function and contains the results of image matching analysis for use by emergency system personnel. This flow indicates whether an image has matched an image in the database of known images. The image data is obtained from areas frequented by travelers, and from areas typically away from travelers. The data flow consists of the following data items each of which is defined in its own DDE:

timestamp
+ station_id
+ transit_vehicle_location
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ image_match_confirmation
+ image_id

imbalance_threshold_configuration

This data flow is used within the Manage Traffic function and contains threshold parameters from traffic operations personnel for another process that detects and warns of imbalances in corridor performance in the geographic area covered by ITS.

imbalance_warning

This data flow is used within the Manage Traffic function and contains a warning when imbalances in corridor performance in the geographic area covered by ITS are detected by the process.

import_administration_request

This data flow within the Manage Archived Data function contains commands and requests for status from the Get Archive Function. This data flow supports the administration of the process to import data into the archive. Included in this flow are requests for data products, catalogs, formatting instructions, specifications for performing checks on the incoming data, quality metrics, methods to apply to the data, and the parameters that govern any cleansing operations. This data flow consists of the following items each of which is defined in its own DDE:

admin_data_product_request
+ admin_catalog_request
+ admin_data_format_parameters
+ admin_check_specification
+ admin_quality_metrics
+ admin_cleansing_parameters

import_administration_status

This data flow from the Get Archive Data function contains the status of the import process and catalog information about data that is available for import. This data flow consists of the following items each of which is defined in its own DDE:

import_archive_status
+ import_archive_catalog

import_archive_catalog

This data flow from the Get Archive Data function contains a catalog of data available from sources within ITS, i.e. other ITS functions; or from sources outside ITS, i.e. terminators. This catalog will be provided based on the request from the administrator and can be used to formulate the subsequent request for data to be imported.

import_archive_status

This data flow from the Get Archive Data function contains the status of the import process including any alarms of bad or missing data. This status information will provide feedback to the administrator based on the inputs provided for formatting, cleansing, and checking.

imported_map_data_attributes

This data flow is used to provide meta data included with the imported map data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute

+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

imported_map_data_for_archive

This data flow is sent by the Map Update Provider and contains information that may be of interest to archive data users systems such as updated maps of the transportation network.

incident_action_time

This data flow is used within the Manage Emergency Services function. It contains the time at which the incident data in the emergency services action log was updated by processes in the Manage Emergency Services function. The data flow contains the following data item which is defined in its own DDE:

time

incident_alert

This data flow contains traveler alerts that report regionally relevant incidents, and may include the incident type, expected duration, expected traffic impact, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions including the traveler's location, search radius, drive route, or timeframe, as well as configurable alert thresholds (e.g., severity of the alert).

incident_alert_details

This data flow is used to send details of an incident from the Manage Traffic function to the Manage Emergency Services function. It contains the following data items each of which is defined in its own DDE:

incident_location
+ incident_start_time
+ incident_duration
+ incident_severity
+ incident_type
+ incident_traffic_impact
+ incident_response_log_from_traffic

incident_analysis_data

This data flow is used within the Manage Traffic function and contains processed traffic sensor data that can be analyzed for the possible presence of incidents. The data is provided directly from the local traffic sensor process rather than from some regional/area based process and so must originate in sensors that are within a small geographic area.

incident_and_event_data

This data flow is used within the Manage Emergency Services function. It contains information about an emergency that has been identified from the inputs received within the function. The data flow consists of some or all or the following data items which are defined in their own DDEs:

identified_emergency_details
+ vehicle_status_details
+ emergency_input_for_disaster

incident_confidence_level

This data flow defines the level of confidence that can be associated with a particular set of incident data. This level will depend on a number of factors such as the source of the incident data (police, media, driver, traveler, etc.), the type of incident (this may affect how easy it is to detect), and the time at which the incident was detected.

incident_cvo_data

This data flow is used within the Manage Emergency Services function and contains incident data concerning commercial vehicle operations. It consists of the following items each of which is defined in its own DDE:

list_size + list_size{cvo_alarm
+ cvo_hazmat_spill_data
+ cv_hazmat_alarm
+ cf_hazmat_route_information
+ freight_alarm}

incident_data

This data flow is used within the Manage Traffic function to send incident data from the Manage Incidents facility to the Provide Traffic Surveillance facility for use by the predictive model process and for transfer to a similar function at another traffic management center (TMC). It consists of the following data items each of which is defined in its own DDE:

current_incident_data
+ planned_event_data
+ planned_events
+ planned_events_local_data
+ request_other_current_incidents_data
+ request_other_planned_events_data
+ disaster_traffic_data_for_other_traffic_management
+ evacuation_traffic_data_for_other_traffic_management

incident_data_flow

This data flow is used to transfer data between the Manage Emergency Services function and the Provide Driver and Traveler Services function. It contains the following items of data each of which is defined in its own DDE:

emergency_request_personal_traveler_acknowledge
+ emergency_request_driver_acknowledge
+ incident_information
+ wide_area_alert_notification_for_travelers
+ evacuation_data_for_isp
+ traveler_information_restrictions_for_travelers
+ deactivate_traveler_information_restrictions_for_travelers
+ transportation_system_status_to_isp
+ em_to_vehicle_incident_scene_information

incident_data_for_cvo

This data flow contains incident information to be transmitted to commercial vehicle fleet operations centers. This data flow consists of the following items each of which is defined in its own DDE:

incident_information
+ other_isp_emergency_data
+ traffic_incident_data_for_isp

incident_data_for_dre

This data flow is sent from the Manage Incident function to the Manage Emergency Services function. It contains the following data item which is defined in its own DDE:

disaster_response_plan_coordination_from_traffic
+ evacuation_plan_coordination_from_traffic
+ traffic_evacuation_status

incident_data_for_em

This data flow is sent from the Manage Incident function to the Manage Emergency Services function. It contains the following data item which is defined in its own DDE:

incident_alert_details
+ incident_response_clear
+ resource_deployment_status
+ alert_notification_status_from_traffic
+ roadway_detours_and_closures_for_em_response
+ em_resource_request_from_traffic
+ current_traffic_incident_response
+ planned_events_for_em_response

incident_data_for_work_zone

This DFD flow represents the data flows from Traffic Data Analysis for Incidents to Manage Work Zones and includes video images. It consists of the following items each of which is defined in its own DDE:

work_zone_intrusion_video_image
+ work_zone_images

incident_data_input

This data flow is used within the Manage Traffic function to send processed traffic sensor data and data received from other traffic management centers (TMCs) from the Provide Traffic Surveillance facility to the Manage Incidents facility. It consists of the following data items each of which is defined in its own DDE:

incident_analysis_data
+ other_current_incidents
+ other_planned_events
+ request_local_current_incidents_data
+ request_local_planned_events_data
+ unusual_data
+ environmental_data_for_incidents
+ disaster_traffic_data_from_other_traffic_management
+ evacuation_traffic_data_from_other_traffic_management

incident_data_request

This data flow is used to transfer data between the Provide Driver and Traveler Services function and the Manage Emergency Services function. It contains the following data items each of which is defined in its own DDE:

driver_status_update
+ emergency_request_personal_traveler_details
+ emergency_request_driver_details
+ alert_notification_status_from_travelers
+ transportation_information_for_emerg_operations
+ transportation_information_for_emerg_routing
+ transportation_information_for_evac_operations
+ transportation_information_for_disaster_operations

incident_data_update

This data flow is used within the Manage Traffic function to request that the process responsible for re-classifying planned events runs because new data has been loaded into the store of either planned events or current incidents. This process will check the stores for new incidents and may re-classify a planned event as a current incident. When doing this, the details of the incident will be sent to another process for the generation of the appropriate incident response.

incident_description

This data flow is used within the Manage Traffic function and contains the description of an incident using a predefined dictionary of character codes.

incident_details

This data flow is sent from the Manage Emergency Services function to the Manage Traffic function and provides information about current incidents. It contains the following data items each of which is defined in its own DDE:

incident_number
+ incident_location
+ incident_start_time
+ incident_duration
+ incident_type
+ incident_severity
+ incident_vehicles_involved

incident_details_from_media

This data flow contains data about an incident that has been reported by a member of the traveling public to the media by mechanisms that are outside of ITS, e.g. car phone. The data flow consists of the following items each of which is defined in its own DDE:

media_identity
+ incident_location
+ incident_start_time
+ incident_duration
+ incident_severity
+ incident_type

incident_duration

This data flow is used within the Manage Traffic function and gives the expected duration of an incident from its start time until the time at which it is expected that it will have no further effect on traffic conditions. The data flow consists of the following data item which is defined in its own DDE:

duration

incident_info_for_emerg

This data flow is sent from the Manage Maintenance and Construction function to the Manage Emergency Services function and contains information about incidents detected by the M&C function. It consists of the following items each of which is defined in its own DDE:

incident_number
+ incident_location
+ incident_start_time
+ incident_duration

+ incident_type
+ incident_severity
+ incident_traffic_impact

incident_info_for_traffic

This data flow is sent from the Manage Maintenance and Construction function to the Manage Traffic function and contains information about incidents detected by the M&C function. It consists of the following items each of which is defined in its own DDE:

incident_number
+ incident_location
+ incident_start_time
+ incident_duration
+ incident_type
+ incident_severity
+ incident_traffic_impact

incident_info_from_emerg

This data flow contains information about incidents detected by the Manage Emergency function. It consists of the following items each of which is defined in its own DDE:

incident_number
+ incident_location
+ incident_start_time
+ incident_duration
+ incident_type
+ incident_severity
+ incident_traffic_impact

incident_info_from_traffic

This data flow is used to send details of an incident from the Manage Traffic function to the Manage Maintenance and Construction function. It contains the following data items each of which is defined in its own DDE:

incident_location
+ incident_start_time
+ incident_duration
+ incident_severity
+ incident_type
+ incident_traffic_impact
+ incident_response_log_from_traffic

incident_info_template

This data is used within the Manage Traffic function and contains a templates showing what data will be available for a particular type of incident.

incident_info_type

This data defines whether amended incident or defined responses data is being provided or is to be sent to the traffic operations personnel.

incident_information

This data flow is sent from the Manage Emergency Services function to the Provide Driver and Traveler Services function and contains information that has been requested about incidents. It consists of the following items each of which is defined in its own DDE:

incident_number
+ incident_location
+ incident_start_time
+ incident_duration
+ incident_type
+ incident_severity
+ incident_traffic_impact

incident_information_for_alerts

This data flow contains traveler alerts that report regionally relevant incidents, and may include the incident type, expected duration, expected traffic impact, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions.

incident_information_for_broadcast

This data flow is used within the Provide Driver and Traveler Services function and contains information about incidents for use in the broadcast traveler information application. It consists of the following items each of which is defined in its own DDE:

incident_information
+ traffic_incident_data_for_isp
+ other_isp_emergency_data

incident_information_for_interactive

This data flow is used within the Provide Driver and Traveler Services function and contains information that has been requested about incidents, processed for traveler consumption, for use in the interactive traveler information application. It consists of the following items each of which is defined in its own DDE:

incident_information
+ traffic_incident_data_for_isp
+ other_isp_emergency_data

incident_information_for_trip_planning

This data flow is used within the Provide Driver and Traveler Services function and contains information that has been requested about incidents for use in the Trip Planning application. It consists of the following item which is defined in its own DDE:

incident_information

incident_information_request

This data flow is used by several ITS functions to request incident information. It will be accompanied by other data flows to provide the origin and hence the return destination for the retrieved data.

incident_information_request_for_alerts

This data flow is used to request specific incident information based on traveler alert subscriptions.

incident_information_request_from_interactive

This data flow is used within the Provide Driver and Traveler Services function to request incident data for the interactive traveler information application. It consists of the following item which is defined in its own DDE:

incident_information_request

incident_location

This data flow is used within the Manage Traffic function and contains the location at which an incident will take place (for planned events) or is taking place (for current incidents). The location will be defined in terms of map coordinates to enable it to be referenced spatially within the geographic area served by the local TMC. The data flow consists of the following data item which is defined in its own DDE:

location_identity

incident_number

This data item identifies each incident that has been or is active. Note that each function will have its own copy of this data so that an incident in one function does not have the same number in the other function, i.e. the numbering of incidents is independent in each function.

incident_overrides

This data flow is used within the Manage Traffic function to transfer changes in traffic control strategy and details of current incidents and planned events from the Manage Incidents facility to the Provide Device Control facility for implementation. The changes in strategy are of two types, one covering changes to road, and/or highway, and/or entry ramp control strategy and the other covering advisory message texts for output using dynamic message signs (DMS). The data flow consists of the following data items each of which is defined in its own DDE:

cv_incident_override
+ current_incident_static_data
+ planned_event_data_for_roadway_information
+ incident_strategy_override
+ roadway_information_incident_updates
+ roadway_info_alert_data
+ roadway_information_evacuation_data

incident_report_source

This data flow contains information about the source of an emergency that has been identified from the inputs received within the function. Examples of the information described by these codes are: emergency telephone service, the E911 service operator, an in-vehicle emergency declared by a driver, and for a transit emergency, etc.

incident_reported_time

This data flow is used within the Manage Emergency Services function. It contains the time at which an incident was first reported and is used for record purposes. The data flow consists of the following data item which is defined in its own DDE:

time

incident_request_criteria

This data flow is used within the Manage Emergency Services functions. It contains the time from which details of current incidents known to the function are to be reported to other functions, i.e. incidents in a particular geographic area and/or the request for the status, time, location, or other criteria pertinent information about the incident. The data flow consists of the following data item which is defined in its own DDE:

time

incident_resource_coordination
This data flow coordinates the request and deployment of resources from multiple agencies to the incident scene.

incident_response_clear
This data flow is sent from the Manage Traffic function to the Manage Emergency Services function and is an indication that the Manage Traffic function has data indicating that an incident has been cleared. It consists of the following items of data each of which is defined in its own DDE:

incident_location
+ incident_type

incident_response_log
This data store is used within the Manage Traffic function. It contains a record of all the incidents that have taken place for which some form of defined response data has been output to other parts of ITS. It consists of the following data items each of which is defined in its own DDE:

incident_location
+ incident_type
+ incident_severity
+ incident_description
+ incident_traffic_impact
+ planned_incident_response

incident_response_log_for_other_traffic_mgmt
This dataflow is sent by Manage Traffic to traffic management functions outside of the local jurisdiction, and contains a record of all the incidents that have taken place for which some form of defined response data has been output to other parts of ITS. It consists of the following data item which is defined in its own DDE:

incident_response_log_from_traffic

incident_response_log_for_transit
This dataflow is sent by Manage Traffic to Manage Transit and contains a record of all the incidents that have taken place for which some form of defined response data has been output to other parts of ITS. It consists of the following data item which is defined in its own DDE:

incident_response_log_from_traffic

incident_response_log_from_other_traffic_mgmt
This dataflow is sent from traffic management functions outside of the local jurisdiction to Manage Traffic, and contains a record of all the incidents that have taken place for which some form of defined response data has been output to other parts of ITS. It consists of the following data item which is defined in its own DDE:

incident_response_log_from_traffic

incident_response_log_from_traffic
This dataflow contains a record of all the incidents that have taken place for which some form of defined response data has been output to other parts of ITS. It consists of the following data items each of which is defined in its own DDE:

incident_description
+ incident_location
+ incident_severity
+ incident_traffic_impact
+ incident_type
+ planned_incident_response

incident_response_log_output
This data flow is used within the Manage Traffic function. It contains the data currently held in the store of incident response logs and consists of the following data items, each of which is defined in its own DDE:

incident_location
+ incident_type
+ incident_severity
+ incident_description
+ incident_traffic_impact
+ planned_incident_response

incident_response_status
This data flow provides the current status of an incident response indicating site management strategies in effect, incident clearance status, emergency response plans, the incident command structure that is in place, and points of contact such as the organization name, address, phone number, mobile phone number or fax number.

incident_response_status_from_emerg

This data flow provides the current status of an incident response indicating site management strategies in effect, incident clearance status, emergency response plans, the incident command structure that is in place, and points of contact.

incident_response_status_to_transit

This data flow provides the current status of an incident response indicating site management strategies in effect, incident clearance status, emergency response plans, the incident command structure that is in place, and points of contact such as the organization name, address, phone number, mobile phone number or fax number.

incident_sensor_data

This data flow is used within the Manage Emergency Services function and contains sensor data collected from secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, on-board transit vehicles, etc.) as well as those secure areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.) for evaluation as a possible incident. Sensor data includes data from threat sensors, object detection sensors, intrusion and motion detection sensors, and infrastructure integrity sensors, as well as data produced by processing the sensor data. It consists of the following items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ sensor_identity
+ infrastructure_integrity_sensor_data_collected
+ infrastructure_integrity_sensor_processed_data
+ threat_sensor_data_collected
+ threat_sensor_processed_data
+ object_sensor_data_collected
+ object_sensor_processed_data
+ intrusion_motion_sensor_data_collected
+ intrusion_motion_sensor_processed_data}

incident_severity

This data flow defines the severity of an incident.

incident_start_time

This data flow is used within the Manage Traffic function and shows the time at which an incident will start. The time indicated may include the time an incident is verified, confirmed, or detected. The point at which it starts to have an effect on traffic conditions will be later than this time which is used as the trigger for any corrective or mitigating action, e.g. change in traffic control strategy. Thus in the case of incidents that are some form of special event, the start time may not be the actual event start time. An example would be a baseball game, which could create an incident as spectators arrive for the start of the game. The time at which this happens will be different (before) the actual start of the game but after the time at which the gates open. The data flow consists of the following data item which is defined in its own DDE:

time

incident_status

Information gathered at the incident site that more completely characterizes the incident and provides current incident response status. This is composed of the following item which is defined in its own DDE:

incident_vehicles_involved

incident_status_update

This data flow provides detailed incident information gathered by emergency personnel at the incident site. Information could include the number and extent of injuries, identification of vehicles and people involved, specification of hazardous material, and any other information required to completely and accurately determine the scope and severity of the incident and the required response. Current response status is also provided which includes identification of the resources on site, site management strategies in effect, and current clearance status. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ emergency_vehicle_identity
+ emergency_vehicle_status_code
+ incident_number
+ time
+ incident_status
+ incident_location
+ incident_start_time
+ incident_duration
+ incident_type
+ incident_severity

incident_strategy_override

This data flow is used within the Manage Traffic function to request a change of current traffic control strategy as applied to intersections and lane control to take account of the effects on traffic flow of a current incident. The data flow consists of the following data items each of which is defined in its own DDE:

selected_roadway_control_strategy

+ selected_ramp_control_strategy

incident_surveillance_data

This data flow is used within the Manage Emergency Services function and contains surveillance data collected from secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, on-board transit vehicles, etc.) as well as those secure areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.) for evaluation as a possible incident. Surveillance data includes video images and audio, as well as data produced by processing the surveillance data. It consists of the following items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image
+ secure_audio
+ secure_area_images
+ secure_video_image_data
+ secure_audio_data}

incident_to_surveillance

This DFD flow contains logical data flows that go from the Manage Incidents function to the Provide Traffic Surveillance function. It consists of the following items each of which is defined in its own DDE:

dynamic_lane_video_image
+ dynamic_lane_status
+ reversible_lane_video_images
+ reversible_lane_status
+ incident_data
+ roadway_detours_and_closures_for_traffic
+ incident_response_log_for_other_traffic_mgmt
+ calculated_incident_times
+ video_image_control_and_status_to_other_center
+ traffic_detour_data_to_other_traffic

incident_traffic_impact

This data flow is used within the Manage Traffic function and contains details of the impact that a particular incident will have on traffic flows.

incident_type

This data flow identifies an incident type using a uniquely defined character code matched to a specific type of incident.

incident_vehicle_status

This data flow contains details of the status of the emergency vehicles that are responding to an incident. The status is stored as a character code.

incident_vehicles_involved

This data flow is used within the Manage Traffic and Manage Emergency Services functions and defines the number of vehicles involved in an incident as well as the amount of property damage caused by the incident at the time of the report.

incident_video_for_emergency_services

This data flow is used within the Manage Traffic function. It contains current video images of incidents requested by the Manage Emergency Services facility. It consists of the following data item which is defined in its own DDE:

incident_video_image

incident_video_image

This data flow contains a high resolution digitized image of a potential or current incident at a particular point on the road or freeway network.

incident_video_image_control

This data flow is used within the Manage Traffic function and contains control parameters for closed circuit television (cctv) systems that are used to provide incident management information. These parameters may control camera pan, tilt, and zoom, plus other picture controls.

incident_video_image_control_by_traffic_operator

This data flow is sent by traffic operations personnel and is used within the Manage Traffic function. It contains control parameters for closed circuit television (CCTV) systems that are used to provide incident management information. These parameters may control camera pan, tilt, and zoom, plus other picture controls. The cctv system may be within or outside the local jurisdiction, assuming permission for remote control has been granted.

incident_video_image_for_traffic_operator

This data flow contains a high resolution digitized image of a potential or current incident at a particular point on the road or freeway network. The closed circuit television (CCTV) may be within or outside the local jurisdiction. If the latter, the image is provided by a traffic management center outside the local jurisdiction whose CCTVs are remotely controlled by the local center. Permission for remote control of the CCTV is assumed to have been granted.

incidents_data_request_for_routing
This data flow represents a request for data on current incidents for use by the Traffic Routing function.

incidents_for_routing
This data flow is used within the Manage Traffic function and contains data about current incidents for use in traffic routing. It consists of the following items each of which is defined in its own DDE:

current_incident_details

indicator_control_configuration_data_for_signal_control
This data flow is used within the Manage Traffic function. It contains the device configuration data for traffic signal controllers in the geographic and/or jurisdictional area(s) served by the function. This includes devices such as Signal System Master (SSM) and Signal System Local (SSL) equipment. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_control_data_for_signal_control

indicator_control_data
This DFD flow carries information from the Output Control Data function to the Provide Roadside Control Facilities function. It consists of the following data items each of which is defined in its own DDE:

indicator_control_data_for_traffic_metering
+ indicator_control_data_for_signal_control
+ har_data
+ har_wide_area_alert_information
+ dms_data
+ dms_control_data
+ dms_wide_area_alert_information
+ dms_traffic_metering_data
+ dms_variable_speed_limit_data
+ reversible_lane_control_for_highways
+ reversible_lane_control_for_roads
+ indicator_control_monitoring_data_for_traffic_metering
+ indicator_control_configuration_data_for_signal_control
+ vehicle_sign_data
+ barrier_system_control
+ lighting_system_control
+ roadway_warning_system_control

indicator_control_data_for_hri
This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators at the roadside on roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

indicator_sign_control_data_for_hri

indicator_control_data_for_roads
This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators at the roadside on roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

indicator_crossing_control_data_for_roads
+ indicator_intersection_control_data
+ indicator_pedestrian_control_data

indicator_control_data_for_signal_control
This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by traffic signal indicators at the roadside on roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

indicator_crossing_control_data_for_roads
+ indicator_intersection_control_data
+ indicator_pedestrian_control_data

indicator_control_data_for_traffic_metering
This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators for traffic metering and lane control signals at the roadside on freeways in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

indicator_crossing_control_data_for_highways
+ indicator_ramp_control_data

indicator_control_monitoring_data_for_traffic_metering

This data flow is used within the Manage Traffic function. It contains the actual data from which instructions to the driver and traveler can be produced by indicators for traffic metering and lane control signals on the freeways in the geographic and/or jurisdictional area(s) served by the function. In this case the data is used by a process to monitor the operation of the indicators rather than actual message output. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_control_data_for_traffic_metering

indicator_control_storage_data

This data flow is used within the Manage Traffic function to transfer indicator control data and signal timing plans from the Provide Device Control facility to Provide Traffic Surveillance facility for loading into the current and long term data stores. It contains the data currently being output to the indicators that are used to control traffic on the roads and highways served by the TMC. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_control_storage_data_for_highways
+ indicator_control_storage_data_for_roads

indicator_control_storage_data_for_highways

This data flow is used within the Manage Traffic function and contains the data currently being output to the indicators that are used to control traffic on the freeways in the geographic and/or jurisdictional area(s) served by the function. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_control_data_for_traffic_metering

indicator_control_storage_data_for_roads

This data flow is used within the Manage Traffic function and contains the data currently being output to the indicators that are used to control traffic on the roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_control_data_for_roads

indicator_crossing_control_data_for_highways

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators at multimodal crossings on freeways served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + indicator_crossing_controls}

indicator_crossing_control_data_for_roads

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators at multimodal crossings on roads (surface streets) served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + indicator_crossing_controls}

indicator_crossing_controls

This data flow contains the actual control data to be passed to an indicator that is a multimodal crossing. This will be either the actual indication to be seen by the driver, e.g. red to stop vehicle or green to proceed, or a set of these instructions with duration times put together to form a fixed time signal plan, or an instruction to run using the controller's local intelligence.

indicator_data

This data flow is used within the Manage Traffic function and contains the data from which a roadside indicator can create the message for output to drivers and travelers.

indicator_equip_status_from_highways_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of an indicator used on a highway for the Manage Maintenance and Construction function. The fault will have been found by a process that is local to the indicator itself. By monitoring this data flow, the receiving process can assess the health and current status of field equipment and repair if deemed necessary. The data flow consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity
+ station_id

indicator_equip_status_from_roads_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of an indicator used on a highway for the Manage Maintenance and Construction function. The fault will have been found by a process that is local to the indicator itself. By monitoring this data flow, the receiving process can assess the health and current status of field equipment and repair if deemed necessary. The data flow consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity
+ station_id

indicator_fault_state

This data flow indicates the status of indicators being managed by the Provide Device Control function. It contains the indicator type (which includes its identity) and a status, including any faults detected. This will allow the traffic control strategy selection process to adjust its strategy to take account the current status. It consists of the following data items each of which is defined in its own DDE:

indicator_status_from_traffic_meters
+ indicator_status_from_signals

indicator_faults_from_signals

This data flow provides the fault data of an indicator used on a surface street for the Manage Traffic function. This data flow shows that an indicator has developed a fault and is therefore operating incorrectly. The fault will have been found by a process that is local to the indicator itself. The data flow consists of the following data items each of which is defined in its own DDE:

roadside_device_fault
+ device_identity
+ station_id

indicator_highway_control_static_data

This data flow is used within the Manage Traffic function and contains data about the control data which may be used by indicators, either locally or as a series of commands from a central source, to provide traffic management on the highway network controlled by the Manage Traffic function. The data flow consists of the following data items each of which is defined in its own DDE:

highway_sign_setting_data
+ highway_sign_setting_plans

indicator_highway_requested_state

This data flow is used within the Manage Traffic function and contains the actual state of operation of an indicator used to pass instructions to drivers and travelers on the highway network served by the function. The form of indication shown to drivers will depend on the type of indicator. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_control_data_for_traffic_metering}

indicator_identity

This data flow is used within the Manage Traffic function to identify individual indicators used for the control of traffic on roads (surface streets) and highways. The indicators can be either intersection signal controllers, pedestrian signal controllers or dynamic message signs (DMS). The data flow consists of the following data items each of which is defined in its own DDE:

indicator_type
+ unit_number
+ location_identity

indicator_input_data

This data flow is used within the Manage Traffic function and contains the actual state of operation of the roadside indicators used to pass instructions to drivers and travelers on roads and highways. It consists of the following data items each of which is defined in its own DDE:

indicator_input_data_from_traffic_meters
+ indicator_input_data_from_signals
+ har_status
+ dms_status
+ vehicle_sign_status
+ barrier_system_status
+ lighting_system_status
+ roadway_warning_system_status

indicator_input_data_from_signals

This data flow is used within the Manage Traffic function and contains the actual state of operation of the roadside and grade crossing indicators used to pass instructions to drivers and travelers on roads (surface streets) within the geographic and/or jurisdictional area(s) served by the function. It is used for centralized monitoring the operation of the indicators and consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + indicator_response_state}

indicator_input_data_from_traffic_meters

This data flow is used within the Manage Traffic function and contains the actual state of operation of the indicators used to pass

instructions to drivers and travelers on freeways for traffic metering within the geographic and/or jurisdictional area(s) served by the function. It is used for centralized monitoring of the operation of the indicators and consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + indicator_response_state}

indicator_input_state_for_highways

This data flow is used within the Manage Traffic function and contains the state of response to control data of indicators on the roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_data
    + indicator_type}

indicator_input_state_for_roads

This data flow is used within the Manage Traffic function and contains the state of response to control data of indicators on the freeways in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_data
    + indicator_type}

indicator_input_storage_data

This data flow is used within the Manage Traffic function to transfer indicator response data from the Provide Device Control facility to the Provide Traffic Surveillance facility. The latter facility will load the data into the current and long term data stores. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_input_storage_data_for_highways
+ indicator_input_storage_data_for_roads

indicator_input_storage_data_for_highways

This data flow is used within the Manage Traffic function and contains the response to control data that has been made by indicators on the freeways in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_type
    + indicator_response_state}

indicator_input_storage_data_for_roads

This data flow is used within the Manage Traffic function and contains the response to control data that has been made by indicators on the roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_type
    + indicator_response_state}

indicator_intersection_control_data

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators at intersections on roads served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity + indicator_intersection_controls}

indicator_intersection_controls

This data flow contains the actual control data to be passed to an indicator at an intersection. This will be either the actual indication to be seen by the driver, e.g. red for stop vehicle or green for proceed, or a set of these instructions with duration times put together to form a fixed time signal plan, or an instruction to run using the controller's local intelligence.

indicator_list

This data flow is used within the Manage Traffic function and contains a list of indicators to which a particular traffic control strategy is to be applied. The indicators may be intersection traffic signal controllers, pedestrian signal controllers and/or dynamic message signs (DMS), the latter being used for lane control or advisory message output purposes. The data flow consists of the following data items each of which is defined by its own DDE:

list_size
+ 1{indicator_identity}list_size

indicator_monitoring_suspend

This data flow is used within the Manage Traffic function and contains an instruction to suspend local monitoring of the operation of an indicator. It is used to prevent a fault being reported because the indicator is not obeying the control data it is receiving due to the input of a preemption request for an emergency vehicle.

indicator_monitoring_suspend_for_priority

This data flow is used within the Manage Traffic function and contains an instruction to suspend local monitoring of the operation of an indicator. It is used to prevent a fault being reported because the indicator is not obeying the control data it is receiving due to the input of a priority request for a transit vehicle.

indicator_operating_condition

This data flow contains the operating condition of an indicator that is an intersection controller. The condition will show which phases are indicating green (proceed) and which are showing red (stop) to vehicles and pedestrians. This data is for use in providing intersection collision avoidance data to approaching vehicles.

indicator_override_for_highways

This data flow is used within the Manage Traffic function. It contains an instruction to suspend the current operation of an indicator on the freeway network served by the function and give preemption to the stream of traffic in which an emergency vehicle is traveling. This data flow is generated by a process that has received a preemption request from the Manage Emergency Services function.

indicator_override_for_roads

This data flow is used within the Manage Traffic function. It contains an instruction to suspend the current operation of an indicator on the road (surface streets) network served by the function and give preemption to the stream of traffic in which an emergency vehicle is traveling. This data flow is generated by a process that has received a preemption request from either the Manage Emergency Services function.

indicator_pedestrian_control_data

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators at pedestrian crossings on roads served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + indicator_pedestrian_controls}

indicator_pedestrian_controls

This data flow contains the actual control data to be passed to an indicator at a pedestrian crossing. This will be either the actual indication to be seen by the driver and the traveler, e.g. red for stop vehicle or cross now indication, or a set of these instructions with duration times put together to form a fixed time signal plan, or an instruction to run using the controller's local intelligence.

indicator_priority_for_highways

This data flow is used within the Manage Traffic function. It contains an instruction to suspend the current operation of an indicator on the freeway network served by the function and give priority to the stream of traffic in which a transit vehicle is traveling. This data flow is generated by a process that has received a priority request from the Manage Transit function.

indicator_priority_for_roads

This data flow is used within the Manage Traffic function. It contains an instruction to suspend the current operation of an indicator on the road (surface streets) network served by the function and give priority to the stream of traffic in which a transit vehicle is traveling. This data flow is generated by a process that has received a priority request from the Manage Transit function.

indicator_ramp_control_data

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators at entry ramps to highways served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + ramp_controls}

indicator_requested_state

This data flow is used within the Manage Traffic function and contains the actual state of operation of a roadside indicator used to pass instructions to drivers and travelers. The state will show some type of indication to drivers depending on the type of indicator. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_road_requested_state
+ indicator_highway_requested_state

indicator_response_data_for_highways

This data flow is used within the Manage Traffic function. It contains the actual state of operation of the roadside indicators used to pass instructions to drivers and travelers on the highways in the geographic and/or jurisdictional area(s) served by the function. The data is used for local monitoring the operation of the indicators. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_type
    + indicator_response_state}

indicator_response_data_for_roads

This data flow is used within the Manage Traffic function. It contains the actual state of operation of the roadside indicators used to pass instructions to drivers and travelers on the roads (surface streets) and at railroad grade crossings in the geographic and/or jurisdictional area(s) served by the function. The data is used for local monitoring of the operation of indicators. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_type
    + indicator_response_state}

indicator_response_state

This data element contains the current state of an indicator that is being used to control traffic on the roads (surface streets) and highways in the geographic area served by the TMC. It is used to check that the indicator is performing as requested and may form the basis for a fault report if it is not. The data flow identifies the indicator state. Examples of typical states are correct operation, not responding, stuck on phase, and phase will not respond.

indicator_road_adaptive_plan_number

This data flow is contains the number of an adaptive plan for the road network controlled by the function. A plan is a set of data that enables adaptive control to be applied to some or all of the indicators in a particular way. For example at one or more intersections, certain phases may be added or omitted, etc.

indicator_road_adaptive_plans

This data flow is used within the Manage Traffic function and contains data about the adaptive control data which may be used by indicators, either locally or as a series of commands from a central source, to provide traffic management on the road network controlled by the Manage Traffic function. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_road_adaptive_plan_number
    + crossing_adaptive_data
    + intersection_adaptive_data
    + pedestrian_adaptive_data}

indicator_road_control_static_data

This data flow is used within the Manage Traffic function and contains data about the control data which may be used by indicators, either locally or as a series of commands from a central source, to provide traffic management on the road network controlled by the Manage Traffic function. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_road_adaptive_plans
+ indicator_road_fixed_plans

indicator_road_fixed_plan_number

This data flow contains the number of an adaptive plan for the road network controlled by the function. A plan is a set of data that enables fixed time control to be applied to some or all of the indicators in a particular way. Thus each set of plan data will specify particular cycle times, off-sets and phase timings for indicators. There may also be special instructions which may require certain phases may be added or omitted, demand responsive operation may be prohibited, local operation may be enabled, etc.

indicator_road_fixed_plans

This data flow is used within the Manage Traffic function and contains data about the fixed time control data which may be used by indicators, either locally or as a series of commands from a central source, to provide traffic management on the road network controlled by the Manage Traffic function. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_road_fixed_plan_number
    + crossing_fixed_time_data
    + intersection_fixed_time_data
    + pedestrian_fixed_time_data}

indicator_road_requested_state

This data flow is used within the Manage Traffic function and contains the actual state of operation of an indicator used to pass instructions to drivers and travelers on the road network served by the function. The form of indication shown to drivers will depend on the type of indicator. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_control_data_for_roads}

indicator_sign_control_data

This data flow contains the actual data for use by indicators that are dynamic message (DMS) and other types of signs on roads and freeways served by the function. The data flow consists of the following items each of which is defined in its own DDE's:

[indicator_identity
| lane_dms_controls
| parking_lot_dms_controls
| emissions_output_message
| dms_advisory_text]

indicator_sign_control_data_for_hri

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators, dynamic message (DMS), short range communications equipment, and other types of signs on the roads (surface streets) in the vicinity of railroad grade crossings. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{crossing_id
+ hri_sign_control_data}

indicator_status_for_highways_from_center

This data flow provides the operational status (state of the device, configuration, and fault data) of indicators used on a highway for the Manage Traffic function. This data flow shows that an indicator has developed a fault and is therefore operating incorrectly. The fault will have been found by a process that is not local to the indicator itself, and may be located anywhere in the geographic area covered by the function. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{roadside_device_status
+ device_identity
+ station_id}

indicator_status_for_roads_from_center

This data flow provides the operational status (state of the device, configuration, and fault data) of indicators used on a surface street for the Manage Traffic function. This data flow shows that an indicator has developed a fault and is therefore operating incorrectly. The fault will have been found by a process that is not local to the indicator itself, and may be located anywhere in the geographic area covered by the function. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{roadside_device_status
+ device_identity
+ station_id}

indicator_status_from_signals

This data flow provides the operational status (state of the device, configuration, and fault data) of an indicator used on a surface street for the Manage Traffic function. This data flow shows that an indicator has developed a fault and is therefore operating incorrectly. The fault will have been found by a process that is local to the indicator itself. The data flow consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity
+ station_id

indicator_status_from_traffic_meters

This data flow provides the operational status (state of the device, configuration, and fault data) of an indicator used on a highway for traffic metering for the Manage Traffic function. This data flow shows that an indicator has developed a fault and is therefore operating incorrectly. The fault will have been found by a process that is local to the indicator itself. The data flow consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity
+ station_id

indicator_type

This data flow is used within the Manage Traffic function and contains the type of indicator to which the accompanying output or input data applies. The type may be either intersection signal controller, pedestrian signal controller, dynamic message sign (DMS) or multimodal crossing.

individual_transit_trip_plan

This data flow contains the portion of an individual's trip plan that can be provided by a Transit system.

individual_transit_user_trip_plan

This data flow contains transit trip plan information intended for the traveler on board a transit vehicle.

individual_vehicle_speed

This data flow contains the time stamped speed of an individual vehicle as measured by a speed sensor. It consists of the

following data items each of which are defined in its own DDE:

list_size + list_size{sensor_identity
+ timestamp
+ speed_sensor_data}

individual_vehicle_speed_for_display
This data flow contains an indication of an individual vehicle's speed which can be displayed on a dynamic message sign (DMS).

individual_vehicle_speed_for_signage
This data flow contains an indication of an individual vehicle's speed which can be transmitted using in-vehicle signage.

information_datapage
This data flow is used within some ITS functions and represents the quantity of data that would be contained on a page. The data will be provided as a string of characters and will be formatted as required by the receiving process.

information_request_id
This data flow contains the identity of a traveler request from a 511 traveler information system. This identity serves as a tracking number to link the response to the requesting party, whether it be an individual traveler or a more general periodic dump to the 511 system for local storage.

infrastructure_condition
This data flow contains the results of analysis performed on roadway and transit infrastructure based on infrastructure monitoring sensors, and includes the current status and condition of the infrastructure.

infrastructure_data_for_archive
This data flow is used within the Manage Maintenance and Construction function and consists of raw and processed data concerning the condition of the infrastructure as reported from sensor equipment on the roadside and on-board maintenance and construction vehicles. This infrastructure includes bridges, culverts, signs, and other roadway infrastructure. The function receiving this flow will process this information and present it to the Manage Archived Data function. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_data_for_m_and_c
+ mcv_infrastructure_sensor_data
+ processed_infrastructure_sensor_data

infrastructure_data_for_archive_attributes
This data flow is used to provide meta data included with maintenance and construction infrastructure data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

infrastructure_integrity_sensor_control
This data flow provides control commands for infrastructure monitoring sensors located on roadway infrastructure such as bridges, or on rail infrastructure such as tracks, etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity

+ infrastructure_integrity_sensor_control_data}

infrastructure_integrity_sensor_control_data

This data flow provides control commands for a single infrastructure monitoring sensor. These commands can be used to configure the sensor and to define processing parameters, including definition of thresholds for detecting failing conditions of the infrastructure.

infrastructure_integrity_sensor_data

This data flow contains actual sensor readings collected from infrastructure monitoring sensors located on roadway infrastructure such as bridges, or on rail infrastructure such as tracks, etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ infrastructure_integrity_sensor_data_collected}

infrastructure_integrity_sensor_data_collected

This data flow represents the output of a single infrastructure monitoring sensor.

infrastructure_integrity_sensor_data_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from infrastructure integrity sensors located on roadway infrastructure such as bridges, or on rail infrastructure such as tracks, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ infrastructure_integrity_sensor_data_collected

infrastructure_integrity_sensor_processed_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing data from infrastructure monitoring sensors. It is analyzed, correlated with other sensor data, and used to detect potential infrastructure integrity problems.

infrastructure_integrity_sensor_status

This data flow is used within the Manage Emergency Services function to report the operational status (state of the sensor device, configuration, and fault data) of infrastructure monitoring sensors located on roadway infrastructure such as bridges, or on rail infrastructure such as tracks, etc. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_device_status}

infrastructure_integrity_status_for_maint

This data flow is sent from the Manage Emergency Services function to the Manage Maintenance and Construction function and contains the data collected by infrastructure monitoring sensors as well as data produced by processing that data and correlating with other sensor data. This data is collected from sensors located on roadway and transit infrastructure, such as tunnels, bridges, and rail tracks. By monitoring this data flow, the receiving process can monitor the health and current status of the infrastructure, and arrange for repair if deemed necessary. The data flow consists of the following data item which is defined in its own DDE:

infrastructure_integrity_sensor_data_collected
+ infrastructure_integrity_sensor_processed_data
+ infrastructure_condition

infrastructure_integrity_status_for_traffic

This data flow is sent from the Manage Emergency Services function to the Manage Traffic function and contains the data collected by infrastructure monitoring sensors as well as data produced by processing that data and correlating with other sensor data. This data is collected from sensors located on roadway and transit infrastructure, such as tunnels, bridges, and rail tracks. By monitoring this data flow, the receiving process can consider the potential for a possible incident. The data flow consists of the following data item which is defined in its own DDE:

infrastructure_integrity_sensor_data_collected
+ infrastructure_integrity_sensor_processed_data
+ infrastructure_condition

infrastructure_integrity_status_for_transit

This data flow is sent from the Manage Emergency Services function to the Manage Transit function and contains the data collected by infrastructure monitoring sensors as well as data produced by processing that data and correlating with other sensor data. This data was collected from sensors located on transit and rail infrastructure, such as rail tracks, and indicates the current status of that infrastructure. The data flow consists of the following data item which is defined in its own DDE:

infrastructure_integrity_sensor_data_collected
+ infrastructure_integrity_sensor_processed_data

+ infrastructure_condition

infrastructure_processed_data_for_repair_needs

This data flow is used within the Manage Maintenance and Construction function and consists of processed data concerning the condition of the infrastructure as reported from sensor equipment on the roadside and on-board maintenance and construction vehicles. This infrastructure includes bridges, culverts, signs, and other roadway infrastructure. By monitoring this data flow, the health of the infrastructure can be assessed and maintenance activities scheduled if deemed necessary. It consists of the following data item which is defined in its own DDE:

processed_infrastructure_sensor_data

infrastructure_sensor_control_by_center_personnel

This data flow provides control commands from the maintenance and construction center personnel interface for an infrastructure monitoring sensor at the roadway. It consists of the following data item which is defined in its own DDE:

infrastructure_sensor_control_of_roadside_devices

infrastructure_sensor_control_from_m_and_c

This data flow provides control commands from a maintenance and construction center for an infrastructure monitoring sensor at the roadway. It consists of the following data item which is defined in its own DDE:

infrastructure_sensor_control_of_roadside_devices

infrastructure_sensor_control_from_mcv

This data flow provides control commands from a maintenance and construction vehicle for an infrastructure monitoring sensor at the roadway. It consists of the following data item which is defined in its own DDE:

infrastructure_sensor_control_of_roadside_devices

infrastructure_sensor_control_of_onboard_devices

This data flow provides control commands from a maintenance and construction center for an infrastructure monitoring sensors on-board a maintenance and construction vehicle.

infrastructure_sensor_control_of_roadside_devices

This data flow provides control commands for an infrastructure monitoring sensor at the roadway.

infrastructure_sensor_data_for_m_and_c

This data flow provides data to the Manage Maintenance and Construction function on the condition of the infrastructure as reported by sensor equipment on the roadside. This infrastructure includes bridges, culverts, signs, and other roadway infrastructure. The data can either be in raw data or image form. By monitoring this data flow, the receiving process can assess the current health of the infrastructure, add it to other sources of information, and pass along to other processes for inventory update and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_data_from_roadside_devices

infrastructure_sensor_data_for_mcv

This data flow provides data to the Manage Maintenance and Construction function on the condition of the infrastructure as reported by sensor equipment on the roadside. This infrastructure includes bridges, culverts, signs, and other roadway infrastructure. The data can either be in raw data or image form. This data is collected from the roadside equipment by the maintenance and construction vehicle and passed along to the center which can then assess the current health of the infrastructure. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_data_from_roadside_devices

infrastructure_sensor_data_from_onboard_devices

This data flow provides data to the Manage Maintenance and Construction function on the condition of the infrastructure as reported by sensor equipment on-board a maintenance and construction vehicle. This infrastructure includes bridges, culverts, signs, and other roadway infrastructure. The data can be in raw data or image form. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{vehicle_id_for_mcv
+ sensor_identity
+ infrastructure_sensor_output}

infrastructure_sensor_data_from_roadside_devices

This data flow provides data to the Manage Maintenance and Construction function on the condition of the infrastructure as reported by sensor equipment on the roadside. This infrastructure includes bridges, culverts, signs, and other roadway infrastructure. The data can either be in raw data or image form. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ infrastructure_sensor_output}

infrastructure_sensor_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of infrastructure sensor equipment, collected directly from the roadside, to the Manage Maintenance and Construction function. This field equipment includes sensors on bridges, culverts, signs, and other roadway infrastructure. By monitoring this data flow, the receiving process can monitor the configuration, health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

infrastructure_sensor_equip_status_for_m_and_c_from_center

This data flow provides the operational status (state of the device, configuration, and fault data) of infrastructure sensor equipment, collected directly from the roadside and via maintenance vehicles, for the Manage Maintenance and Construction function. This field equipment includes sensors on bridges, culverts, signs, and other roadway infrastructure. By monitoring this data flow, the receiving process can monitor the configuration, health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_status_for_m_and_c
+ mcv_infrastructure_sensor_status

infrastructure_sensor_output

This data flow contains the raw data collected from a single sensor. This data flow could include data pertaining to the condition of bridges, culverts, signs, and other roadway infrastructure. It includes metadata describing the type of data, quality of the data, etc.

infrastructure_sensor_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of infrastructure sensor equipment, collected directly from the roadside, to the Manage Maintenance and Construction function. This field equipment includes sensors on bridges, culverts, signs, and other roadway infrastructure. By monitoring this data flow, the receiving process can monitor the configuration, health and current status of field equipment and repair if deemed necessary. It consists of the following data item which is defined in its own DDE:

infrastructure_sensor_status_of_roadside_devices

infrastructure_sensor_status_for_mcv

This data flow provides the operational status (state of the device, configuration, and fault data) of infrastructure sensor equipment, collected via maintenance and construction vehicles, for the Manage Maintenance and Construction function. This field equipment includes sensors on bridges, culverts, signs, and other roadway infrastructure. It consists of the following data item which is defined in its own DDE:

infrastructure_sensor_status_of_roadside_devices

infrastructure_sensor_status_of_onboard_devices

This data flow provides the operational status (state of the device, configuration, and fault data) of infrastructure sensor equipment on-board a maintenance and construction vehicle to the Manage Maintenance and Construction function. It consists of the following data items each of which is defined in its own DDE:

sensor_identity
+ sensor_device_status
+ vehicle_id_for_mcv

infrastructure_sensor_status_of_roadside_devices

This data flow provides the operational status (state of the device, configuration, and fault data) of infrastructure sensor equipment, for the Manage Maintenance and Construction function. This field equipment includes sensors on bridges, culverts, signs, and other roadway infrastructure. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

interactive_traveler_information_parameters

This data contains parameters to be used to govern the data processing for traveler consumption and interactive dissemination of traveler information (traffic, transit, incident, parking information, etc.) to kiosks, personal devices, in-vehicle units, and traveler telephone/telecommunications information systems.

intermodal_archive_catalog

This data flow is used to provide the description of the data contained in the collection of intermodal data from the Intermodal Freight Depot that has been made available for the Manage Archive Function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g. time range of entries, number of entries; or sample data products.

intermodal_archive_catalog_request

This data flow from the Manage Archived Data function to the Intermodal Freight Depot contains the request for a catalog of the

data held by the terminator. The request for a catalog may include either or both the description of the types of data the archive is interested in or a timeframe over which the requested information may be available.

intermodal_archive_data_request
This data flow from the Manage Archived Data function to the Intermodal Freight Depot contains the request for the data held by the terminator. The request for data may include either or both the description of the data required or a timeframe over which the requested information may be available.

intermodal_data
This data flow is sent by the Intermodal Freight Depot and contains intermodal freight information that may be of interest to archive data users systems.

intermodal_data_attributes
This data flow is used to provide meta data included with intermodal data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

intermodal_data_for_archive
This data flow is sent by the Intermodal Freight Depot and contains intermodal freight information that may be of interest to archive data users systems along with the meta data that is necessary to describe the imported data to the Manage Archived Data function. This data flow contains the following items each of which is defined in its own DDE:

intermodal_data
+ intermodal_data_attributes

intersection_adaptive_data
This data flow is used within the Manage Traffic function and contains data about adaptive control data used by indicators that are intersection controllers to enable them to control traffic. The format of the data will depend upon the type of adaptive control being used.

intersection_blocked
This data flow contains information, obtained from sensors in the intersection, regarding blockage of the HRI by a vehicle or other object. This data will be used by the traffic management functions to begin incident management procedures.

intersection_collision_avoidance_data
This data flow contains data for a vehicle that shows that it is likely to be involved in a collision at an intersection, unless it takes some avoiding action. The data flow can show the direction from which the other vehicle(s) is (are) approaching. This will help the vehicle to decide which is the most appropriate avoiding action to take.

intersection_control_commands
This data flow contains the actual control commands that make the intersection controller change the traffic 'stop/go' outputs shown by its phases to traffic. The actual format of the control commands will depend on national standards being developed for controller fixed time plans, e.g. NTCIP.

intersection_cycle_time
This data flow is used within the Manage Traffic function and contains the time taken to complete all the control commands in an intersection fixed time plan once only.

intersection_equipment_data

This data flow is used within the Manage Traffic function and contains data about each road traffic intersection so that its control using adaptive, fixed time or local techniques can be properly implemented when needed. Note that the indicator type data in data that forms part of the indicator identity will be set to that for intersection controllers. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + intersection_phase_number
    + intersection_phase_data}

intersection_fixed_time_data

This data flow is used within the Manage Traffic function and contains data about fixed time control data used by indicators that are intersection controllers to enable them to control traffic. The data will be made up of the following items each of which is defined in its own DDE:

intersection_cycle_time
+ intersection_offset_time
+ intersection_control_commands

intersection_offset_time

This data flow is used within the Manage Traffic function and contains the relative start time of the cycle of intersection control commands and is set at a value that will achieve synchronization between adjacent controllers of any type.

intersection_phase_data

This data comprises data about the way in which each road traffic intersection controller operates, i.e. the minimum and maximum phase timings, phase change timings, etc. The data will be in integer format.

intersection_phase_number

This data flow contains the number of control phases that can be driven either through centrally supplied and implemented control data or by down loading data for local implementation. The phases may themselves be used to control vehicles, bicycles, transit vehicles, pedestrians, emergency vehicles, or other specialist uses.

intersection_state_data

This data flow is used within the Manage Traffic function and contains the operating state, including signal phase and timing, of an indicator that is an intersection controller. This data is for use in providing intersection collision avoidance data to approaching vehicles. It consists of the following data items each of which is defined in its own DDE:

indicator_operating_condition
+ indicator_response_state

intersection_status_data_for_vehicle

This data flow is sent from the Provide Roadside Control Facilities function to the Provide Vehicle Control and Monitoring function. It provides an approaching vehicle with the operational status of the intersection controller - including signal phase and timing, details on the geometry of the intersection, current vehicle for including its approaching speed, direction, impending turning movements.

intrusion_alert_device_control

This data flow contains control parameters for intrusion alert devices that have been installed in work zones or maintenance areas. These parameters may cover things such as device configuration or device reset.

intrusion_alert_device_control_on_board

This data flow contains control parameters for intrusion alert devices that have been installed on a maintenance and construction vehicle. These parameters may cover things such as device configuration or device reset.

intrusion_alert_device_status

This data flow provides the operational status (state of the device, configuration, and fault data) of intrusion alert equipment located in a work zone or maintenance area. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

intrusion_alert_device_status_on_board

This data flow provides the operational status (state of the device, configuration, and fault data) of intrusion alert equipment located on a maintenance and construction vehicle. It consists of the following data items each of which is defined in its own DDE:

vehicle_id_for_mcv
+ device_identity
+ roadside_device_status

intrusion_alert_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of intrusion alert equipment located in a work zone or maintenance area to the Manage Maintenance and Construction function. By monitoring this data flow,

the receiving process can monitor the configuration, health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

intrusion_alert_for_in_vehicle_signing
This data flow contains data for use in producing an in-vehicle signage display that provides as alert that the vehicle has intruded upon a work zone area, or is about to intrude upon the work zone.

intrusion_detection_device_control
This data flow contains control parameters for intrusion detection devices that have been installed in work zones or maintenance areas. These parameters may cover things such as device configuration or device reset.

intrusion_detection_device_output
This data flow contains the output of an intrusion detection device indicating that an intrusion of the work zone perimeter has been detected. The output may consist of simple binary information (intrusion present or not), or it may contain information regarding the nature of the intrusion, location of the intrusion, etc.

intrusion_detection_device_status
This data flow provides the operational status (state of the device, configuration, and fault data) of intrusion detection equipment located in a work zone or maintenance area. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

intrusion_detection_equip_status_for_m_and_c
This data flow provides the operational status (state of the device, configuration, and fault data) of intrusion detection equipment to the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can monitor the configuration, health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

intrusion_motion_sensor_control
This data flow provides control commands for intrusion or motion detection sensors located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ intrusion_motion_sensor_control_data}

intrusion_motion_sensor_control_data
This data flow provides control commands for a single intrusion or motion detection sensor. These commands can be used to configure the sensor and to define processing parameters, including definition of thresholds for intrusion or motion detection.

intrusion_motion_sensor_data
This data flow contains actual sensor readings collected from intrusion or motion detection sensors located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure. etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ intrusion_motion_sensor_data_collected}

intrusion_motion_sensor_data_collected
This data flow represents the output of a single intrusion or motion detection sensor located in a secure area.

intrusion_motion_sensor_data_for_field_proc
This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from intrusion or motion detection sensors located in areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ intrusion_motion_sensor_data_collected

intrusion_motion_sensor_processed_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing intrusion or motion detection sensor data. It is analyzed, correlated with other sensor data, and used to detect potential threats in secure areas.

intrusion_motion_sensor_status

This data flow is used within the Manage Emergency Services function to report the operational status (state of the sensor device, configuration, and fault data) of an intrusion or motion detection sensor located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_device_status}

isp_data_collectors_to_route_selection_and_guidance

This data flow is sent from the Collect ISP Services Data function to the Provide Guidance and Routing Services function. It contains the following data items each of which is defined in its own DDE:

route_selection_map_data
+ other_routes_map_data
+ transit_data_for_route_selection
+ multimodal_data_for_route_selection
+ traffic_data_for_route_guidance
+ weather_data_for_route_guidance

isp_data_collectors_to_trav_info_svcs

This data flow is sent from the Collect ISP Services Data function to the Provide Traveler Information Services function. It contains the following data items each of which is defined in its own DDE:

traffic_data_for_broadcast
+ transit_data_for_broadcast
+ incident_information_for_broadcast
+ weather_data_for_broadcast
+ event_information_for_broadcast
+ parking_data_for_broadcast
+ border_data_for_broadcast
+ multimodal_data_for_broadcast
+ traffic_data_for_interactive
+ transit_data_for_interactive
+ incident_information_for_interactive
+ weather_data_for_interactive
+ event_information_for_interactive
+ parking_data_for_interactive
+ border_data_for_interactive
+ multimodal_data_for_interactive
+ traffic_data_for_centers
+ transit_data_for_centers
+ weather_data_for_centers
+ event_information_for_centers
+ parking_data_for_centers
+ multimodal_data_for_centers
+ emergency_data_for_centers
+ border_data_for_centers
+ emergency_data_for_emergency_operations
+ travel_services_data_for_travel_services
+ traveler_service_map_data
+ border_data_for_alerts
+ event_information_for_alerts
+ incident_information_for_alerts
+ multimodal_data_for_alerts
+ parking_data_for_alerts
+ traffic_data_for_alerts
+ transit_data_for_alerts
+ weather_data_for_alerts

isp_data_collectors_to_trip_planning

This data flow is sent from the Collect ISP Services Data function to the Provide Trip Planning Services function. It contains the following data items each of which is defined in its own DDE:

traffic_data_for_trip_planning
+ transit_data_for_trip_planning
+ incident_information_for_trip_planning
+ weather_data_for_trip_planning
+ parking_data_for_trip_planning
+ multimodal_data_for_trip_planning

+ trip_planning_map_data

isp_to_cvo

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Commercial Vehicles function. It contains traffic and toll information. The data flow consists of the following item which is defined in its own DDE:

traffic_data_for_cvo
+ toll_price_for_cvo
+ incident_data_for_cvo

issue_wide_area_alerts

This data flow requests that an alert be issued based on the information received from existing emergency centers receiving emergency calls pertaining to a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be displayed to travelers. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{alert_type
+ alert_severity
+ geographical_area
+ alert_duration}

J

K

kiosk_identity

This data flow is used by the Provide Driver and Traveler Services function to identifies a particular kiosk. This enables the kiosk that was the source of a data request to be identified so that the requested data can be sent back to the correct kiosk. This occurs so that a rich selection of kiosk identities can be supported.

L

lane_change_details

This data flow contains detailed data to describe how the actual automated lane change is to take place. For example, it could contain exactly where and at what speed the lane change will take place.

lane_change_strategy

This data flow contains an automated lane changing strategy to set the basic operating parameters for the automatic vehicle control process.

lane_closure

This data element contains the unique identity of each link and the lowest number at any point of lanes closed on a link.

lane_controls

This data flow is used within the Manage Traffic function and contains the actual control data to be passed to a lane use controller. The commands to be displayed will indicate whether a lane is open or closed or assigned to a specific vehicle class dependent on what has been determined as the best strategy for traffic.

lane_deviation

This data flow contains details of the position of the vehicle within a highway lane as computed from on-board sensors. The data describes the center, the right of center or the left of center. Both non-zero values are measured in inches up.

lane_dms_controls

This data flow contains the actual control data to be passed to an indicator that is a lane control sign. This will be the actual indication that the lane is or is not to be used.

lane_identity

This data flow is used within the Manage Traffic function to identify individual dynamic lane or shoulder management equipment used for the control of traffic. The data flow consists of the following data items each of which is defined in its own DDE:

unit_number
+ location_identity
+ indicator_identity

lane_list

This data flow is used within the Manage Traffic function and contains a list of the lanes to which a particular traffic control strategy is to be applied. The lanes or shoulders are served by dynamic lane management equipment which has the ability to

control vehicle access along the roadway. The data flow consists of the following data items each of which is defined by its own DDE:

list_size

lane_management_control

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by dynamic lane indicators served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ lane_controls}

lane_management_device_status

This data flow provides the operational status (state of the device, configuration, and fault data) of dynamic lane management control devices. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

lane_management_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of dynamic lane management systems to the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can assess the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

lane_management_status

This data flow provides the operational status (state of the device, configuration, and fault data) of a dynamic lane management indicator used for the Manage Traffic function. This data flow shows that an indicator has developed a fault and is therefore operating incorrectly. The fault will have been found by a process that is local to the indicator itself. The data flow consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity
+ station_id

lane_open

This data element contains the unique identity of each link and the lowest number at any point of lanes open on a link.

lane_status_for_m_and_c

This DFD flow provides status for dynamic lane and shoulder use systems to the Determine M&C Needs function. It consists of the following items each of which is defined in its own DDE:

lane_management_equip_status_for_m_and_c
+ shoulder_management_equip_status_for_m_and_c

lane_steering_commands

This data flow contains data showing any changes required to the vehicle's steering so that it can continue to stay in the current lane. The commands are of the form turn left, turn right, or center the steering and will be of a much smaller order of magnitude than the similar commands for changing lane.

lane_violation_notification_for_traffic

This data flow within the Manage Traffic function contains vehicle-specific information about a dynamic lane violation.

lighting_system_activation_request_from_operator

This data flow is used within the Manage Traffic function to request activation of an electrical lighting system by traffic operations personnel. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ lighting_system_control_request}

lighting_system_control

This data flow provides configuration and control commands for electrical lighting systems along the roadside. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{station_id

+ device_identity
+ lighting_system_control_request}

lighting_system_control_request
This data flow is a request for activation or deactivation of an electrical lighting system, and any other supportive control and configuration data.

lighting_system_device_status
This data flow is used within the Manage Traffic function to report the operational status (state of the device, configuration, and fault data) of electrical lighting systems. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

lighting_system_equip_status_for_m_and_c
This data flow provides the operational status (state of the device, configuration, and fault data) of an electrical lighting system to the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can assess the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

lighting_system_status
This data flow is used within the Manage Traffic function to report the status of an electrical lighting system along the roadside. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

lighting_system_status_to_operator
This data flow is used within the Manage Traffic function to report to the traffic operations personnel the status of an electrical lighting system along the roadside. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE: list_size + list_size{station_id + device_identity + roadside_device_status}

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

link_and_queue_data
This data contains, for each link, the average journey time, speed, and occupancy. For queues it contains the queue times for each link. This data is computed from traffic data and (if available) vehicle probe data.

link_state_data_for_broadcast
+ list_size{link_identity
    + link_journey_time
    + link_queue_time}

link_attributes
This data flow is used within the Provide Driver and Traveler Services function and contains details of the type of road data stored for the link by a TMC or ISP.

link_conditions
This data flow is used within the Manage Traffic function and contains information about local conditions, i.e. snow, ice, rain, fog, other forms of precipitation (earth, sand, petroleum, chemicals, etc.), flooding on each link of the road and highway network served by the function. Where the link is in a tunnel, high temperature and optionally the use of fire extinguishers is monitored.

link_data
This data flow contains a new version of the store of link data used to determine which other TMC to contact to obtain traffic data relating to another geographic area. The data flow consists of the following data items each of which is defined in its own DDE:

link_attributes
+ link_identity
+ link_TMC_identity

link_data_for_guidance
This data flow is sent from the Manage Traffic function to the Provide Driver and Traveler Services function. It contains data for use in determining which other ISP('s) must be contacted to obtain data about roads and highways in geographic area(s) outside

that served by the local function. It consists of the following data items each of which is defined in its own DDE:

list_size{link_attributes
+ link_speed_limit
+ link_identity
+ link_ISP_identity}

link_data_from_avl

This data flow contains the link journey and queue times calculated by processing the times at which AVL data was collected from vehicles on the road (surface street) and highway network served by the function. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{link_queue_time
+ link_journey_time
+ link_speed}

link_data_from_probes

This data flow contains the link travel times, speed, and queue times calculated by processing probe data collected from vehicles on the road (surface street) and highway network served by the function. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{link_queue_time
+ link_travel_time
+ link_speed}

link_data_from_tags

This data flow is used within the Manage Traffic function. It contains the link journey and queue times calculated by processing the times at which tag data was collected from vehicles on the road (surface street) and highway network served by the function. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{link_queue_time
+ link_journey_time}

link_data_store

This data store is used within the Provide Driver and Traveler Services function and contains data for use in determining which other ISP must be contacted to obtain road data relating to another geographic area. It consists of the following data item which is defined in its own DDE:

link_data_for_guidance

link_data_update

This data flow is used within the Manage Traffic function and contains updates to the data held in the store of link data used to determine which other TMC to contact to obtain traffic data relating to another geographic area. It consists of the following data items each of which is defined in its own DDE:

link_attributes
+ link_identity
+ link_TMC_identity

link_delay

This data flow is used within the Manage Traffic function and contains the calculated delay for vehicles driving along a particular link in the road and highway network served by the function. This delay is the additional time it will take above that recorded during free flow conditions to travel from one end of the link to the other and will either be calculated from sensor and/or probe data, or produced by the predictive model process within the function.

link_details

This data flow is used within the Manage Traffic function and contains data about which links of the road network are covered by different TMCs. It consists of the following data items each of which is defined in its own DDE:

link_attributes
+ link_identity
+ link_TMC_identity

link_environment_conditions

This data flow contains environment conditions (e.g. rain, wind, sun, etc) computed for a single link.

link_identity

An identifier assigned to a link is where a link is a topological connection between two nodes. Link-IDs may be arbitrary, or may be assigned by convention to assure that multiple occurrences of the same ID will not occur within one network or within the universe of similar networks or databases. The data flow consists of the following data items each of which is defined in its own

DDE:

unit_number
+ link_type
+ location_identity

link_identity_list
This data flow contains a list of the links in the road and freeway network that are covered by a transit route segment. It consists of the following data items each of which is defined in its own DDE:

list_size{link_identity}

link_ISP_identity
This data flow is used within the Provide Driver and Traveler Services function and contains the identity of other ISP's with which road links outside the local ITS geographic area are associated.

link_journey_time
This data flow is used within the Manage Traffic function and contains the current journey time for vehicles on a particular link. This will have been determined using sensor data that measures traffic on the road and highway network served by the function or produced by the predictive model process.

link_level_of_service
This data element contains the data for the level of service (LOS) on a particular link that is stored by a TMC. The LOS of a link can be designated between LOS A through LOS F. LOS A indicating free flowing traffic and LOS F indicating total grid lock.

link_list
This data flow is used within the Manage Traffic function and contains a list of links for which data is being provided. These links will comprise all of those on both the road (surface street) and highway network served by the function. The data flow consists of the following data items each of which is defined by its own DDE:

list_size
+ 1{link_identity}list_size

link_list_for_highways
This data flow is used within the Manage Traffic function and contains a list of links for which data is being provided. These links will comprise all of those on the highway network served by the function. The data flow consists of the following data items each of which is defined by its own DDE:

list_size
+ 1{link_identity}list_size

link_list_for_roads
This data flow is used within the Manage Traffic function and contains a list of links for which data is being provided. These links will comprise all of those on the road (surface street) network served by the function. The data flow consists of the following data items each of which is defined by its own DDE:

list_size
+ 1{link_identity}list_size

link_occupancy
This data item contains an average measure of occupancy, for a single link or sequence of links in the transportation network. The data is measured in seconds and may subsequently be converted to give a percentage value, the percentage of time for which the detector was occupied by a vehicle.

link_queue_time
This data flow is used within the Manage Traffic function and contains the current queuing time for vehicles on a particular link. This will have been determined using sensor data that measures traffic on the road and highway network served by the function or produced by the predictive model process.

link_speed
This data item contains an average measure of vehicle speed, for a single link or sequence of links in the transportation network.

link_speed_limit
This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains the posted speed limit of the vehicles using the link. It also includes speed limits for special vehicles traveling on a link. This data flow consists of the following items each of which is defined in its own DDE:

speed_limit
+ special_vehicle_speed_limit

link_state_data
This data flow is used within the Manage Traffic function and contains data about traffic conditions on each link within the road (surface street) and highway network in the geographic area served by the TMC. The data will apply to all links regardless of whether it is used for other purposes such as strategy selection, parking lot management, etc. The data flow consists of the

following items each of which is defined in its own DDE:

link_list
+ 1{vehicle_count
  + vehicle_queue_length
  + vehicle_speed
  + vehicle_headway
  + vehicle_occupancy}list_size

link_state_data_for_broadcast

This data flow contains speed, occupancy, and status on each link within the road (surface street) and highway network in the geographic area relevant to the user. The data flow consists of the following items each of which is defined in its own DDE:

link_list
+ 1{vehicle_speed
  + vehicle_occupancy
  + link_occupancy
  + link_speed}list_size
  + link_status

link_status

This data element contains the data for the status of lanes on each link which is stored by a particular TMC or ISP. The lane on the link can either be closed or open. The data flow consists of the following data items each of which is defined in its own DDE:

lane_closure

link_strategy_data

This data flow is used within the Manage Traffic function and contains processed data from sensors on a link that forms part of the road and highway network served by the TMC. The data is used as one of the inputs for the selection of the most appropriate traffic control strategy by the Provide Device Control facility. The data flow consists of the following data items each of which is defined in its own DDE:

link_list
+ 1{vehicle_count
  + vehicle_queue_length
  + vehicle_occupancy}list_size

link_time_calculation_data

This data flow is used within the Manage Traffic function and contains the probe data read from readers within the road (surface street) and freeway network served by the function. This data can be used with that read from vehicles in the future to calculate link travel times, speed, and queue times. The data flow contains the following data item which is defined in its own DDE:

list_size
+ list_size{date
    + time
    + vehicle_traffic_probe_data_for_traffic}

link_time_calculation_store

This data store is used within the Manage Traffic function and contains probe data that has previously been read from vehicles. This store holds probe data previously read from vehicles which can be used with the data read from vehicles in the future to calculate link travel times, speed, and queue times. The data flow contains the following data item which is defined in its own DDE:

link_time_calculation_data

link_TMC_identity

This data flow is used within the Provide Driver and Traveler Services function and contains the identity of the TMC with which each road link is associated.

link_traffic_conditions

This data flow contains processed sensor data providing traffic conditions for a single link.

link_travel_time

This data flow is used within the Manage Traffic function and contains the current travel time for vehicles on a particular link. This will have been determined using probe and sensor data that measures traffic on the road and highway network served by the function or produced by the predictive model process.

link_type

This data flow is used within the Manage Traffic function and contains an identifier to show the type of link to which associated data applies. The link type varies according to how it fits into the road and highway network. It can be all or part of a surface street, a lane of a surface street, a lane on a highway, or all of a highway, and can have other characteristics such as high occupancy vehicles (hov) use only, etc.

list_size

This data flow is a general parameter used throughout ITS functions to specify the number of data items included in a data flow. For example it can be the number of indicators in a strategy selection message, or the number of data items that have been collected in a particular time period.

load_description

This data flow summarizes the contents and size of the load to be conveyed by a commercial vehicle along its permitted route plan. This data may include special load characteristics (dimensions, weight, hazardous material designation etc.) to ensure that the links in the road (surface street) and highway network on the planned route can accommodate its passage.

local_control_plan

This is a data flow that represents the information required to implement a specific control strategy at a grade crossing. It includes devices to be controlled, preconditions, timings and any required parameters.

local_decision_support

This data flow provides data that enables emergency personnel in the field to implement an effective incident response. It includes local traffic, road, and weather conditions, hazardous material information, and the current status of resources that have been allocated to an incident.

local_env_data_for_warning

This data flow is used within a local roadside traffic device and contains a set of outputs from individual environment sensors. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ sensor_identity
+ environment_sensor_output}

local_environmental_data_for_signage

This data flow is used within the Manage Traffic function to provide environmental sensor data from other roadway devices to be used to generate a message for in-vehicle signage. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{station_id
+ sensor_identity
+ environment_sensor_output}

local_schema

This data flow from the Manage Archive function contains the definition of the archive managed by the local process. The schema defines the structure of the archive database, including information such as the definition of objects within a database or how tables of data are related to each other as in a relational database.

local_sensor_data

This data flow is used within the Manage Traffic function as a means of transferring sensor data for use in traffic management from the Process Sensor Data facility to the Provide Device Control facility. It is intended to be used in circumstances where traffic management cannot be implemented by anything other than local (roadside) means. The data flow consists of the following data items each of which is defined in its own DDE:

local_sensor_data_for_highways
+ local_sensor_data_for_roads
+ local_sensor_data_for_warning
+ local_env_data_for_warning
+ road_user_dynamic_warning
+ road_user_protection_warning_for_display
+ road_user_protection_warning_for_vehicle

local_sensor_data_for_highways

This data flow is used within the Manage Traffic function It contains sensor data for use in traffic management when traffic management cannot be implemented by anything other than local roadside (freeway) means. The data flow consists of the following data items each of which is defined in its own DDE:

crossing_close_time
+ crossing_close_duration
+ hov_priority
+ roadside_conditions
+ traffic_video_image
+ vehicle_detection_data

local_sensor_data_for_roads

This data flow is used within the Manage Traffic function. It contains sensor data for use in traffic management when traffic management cannot be implemented by anything other than local roadside means. The data flow consists of the following data items each of which is defined in its own DDE:

crossing_close_time
+ crossing_close_duration

+ hov_priority
+ pedestrian_demand
+ roadside_conditions
+ traffic_video_image
+ vehicle_detection_data

local_sensor_data_for_warning

This data flow is used within the Manage Traffic function. It contains sensor data for use direcly within a local roadside device. The data flow consists of the following data items each of which is defined in its own DDE:

crossing_close_time
+ crossing_close_duration
+ hov_priority
+ pedestrian_demand
+ roadside_conditions
+ traffic_video_image
+ vehicle_detection_data

local_transit_operator_authentication

This data flow is used by processes within the Manage Transit function. It contains the confirmation of transit vehicle operator authentication to the transit vehicle as one parameter in determining whether to disable the vehicle. This data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag

location_identity

This data element is used by many of the ITS functions to communicate the location of any transportation feature, entity, or event in an unambiguous and mutually understandable way. The Society of Automotive Engineer's Information Report SAE J2374 describes a suite of alternative location referencing interface profiles for use in Intelligent Transportation Systems. The location referencing interface profiles included in J2374 are in varying states of development and will continue to evolve as ITS user requirements and results of computer and field tests become available. The current set of interface profiles includes: - Geometry Profile - Geographic Coordinate Profile - Grid Profile - Linear Referencing Profile - Cross-streets Profile - Address Profile The profiles, when incorporated into relevant standards, will provide a common language for the expression of location between the different elements of an integrated transportation system.

lock_tag_data_store

This data store is used within the Manage Commercial Vehicles function and contains the information stored in a electronic lock tag. This tag is used to control access to the cargo being carried across a border by a commercial vehicle. It consists of the following data items each of which is defined in its own DDE:

cv_lock_tag_data

logged_special_vehicle_route

This data contains details about a route that has been requested by a special vehicle. This could be a commercial vehicle that is carrying cargo which could be viewed as being liable to cause a potential incident. Loads falling into this category are those containing hazardous (HAZMAT) material, or those which are outsize, e.g. wide, heavy, or fragile and hence slow moving. This could also include vehicles which must be specially routed (e.g. the governors motorcade). The data flow is derived from the route that has been produced for the special vehicle.

hazmat_load_data
+ list_size{route_segment_end_point
    + route_segment_estimated_arrival_time
    + route_segment_estimated_travel_time
    + route_segment_identity
    + route_segment_start_point}

long_term_data

This data store is used within the Manage Traffic function to contain data about the previous (historical) state of traffic on the road (surface street) and highway network served by the function. The data is accumulated in real time at periodic time intervals from other processes within both this and other ITS functions. The traffic flow, other routes use, o-d matrix, parking lot, processed and wide area pollution data may be stored in hourly time intervals for each day over a rolling two week period, after which it may be consolidated into a single smoothed or average set of data for normal weekday flows. The traffic management data may be stored in fifteen minute intervals daily for a long period of time as a record of the indicator state. The store consists of the following items of data each of which is defined in its own DDE:

historical_stored_incident_data
+ historical_other_routes_use
+ o_d_matrix
+ historical_parking_lot_storage_data
+ historical_processed_traffic_data
+ historical_processed_roadway_env_data
+ historical_traffic_flow_state
+ historical_wide_area_pollution_data
+ historical_traffic_management_storage_data

long_term_data_for_exchange

This data flow is used within the Manage Traffic function to provide data about the previous (historical) state of traffic on the road (surface street) and highway network served by the function for exchange with other traffic management systems. The data is accumulated in real time at periodic time intervals from other processes within both this and other ITS functions. The traffic flow, other routes use, o-d matrix, parking lot, processed and wide area pollution data may be stored in hourly time intervals for each day over a rolling two week period, after which it may be consolidated into a single smoothed or average set of data for normal weekday flows. The traffic management data may be stored in fifteen minute intervals daily for a long period of time as a record of the indicator state. The data consists of the following items each of which is defined in its own DDE:

historical_stored_incident_data
+ historical_other_routes_use
+ o_d_matrix
+ historical_parking_lot_storage_data
+ historical_processed_traffic_data
+ historical_processed_roadway_env_data
+ historical_traffic_flow_state
+ historical_wide_area_pollution_data
+ historical_traffic_management_storage_data

long_term_data_for_output

This data flow is used within the Manage Traffic function to provide data about the previous (historical) state of traffic on the road (surface street) and highway network served by the function for output to other functions. The data is accumulated in real time at periodic time intervals from other processes within both this and other ITS functions. The traffic flow, other routes use, o-d matrix, parking lot, processed and wide area pollution data may be stored in hourly time intervals for each day over a rolling two week period, after which it may be consolidated into a single smoothed or average set of data for normal weekday flows. The traffic management data may be stored in fifteen minute intervals daily for a long period of time as a record of the indicator state. The data consists of the following items each of which is defined in its own DDE:

historical_stored_incident_data
+ historical_other_routes_use
+ o_d_matrix
+ historical_parking_lot_storage_data
+ historical_processed_traffic_data
+ historical_processed_roadway_env_data
+ historical_traffic_flow_state
+ historical_wide_area_pollution_data
+ historical_traffic_management_storage_data

long_term_data_for_prediction

This data flow is used within the Manage Traffic function to provide data about the previous (historical) state of traffic on the road (surface street) and highway network served by the function for use in predictive traffic modeling. The data is accumulated in real time at periodic time intervals from other processes within both this and other ITS functions. The traffic flow, other routes use, o-d matrix, parking lot, processed and wide area pollution data may be stored in hourly time intervals for each day over a rolling two week period, after which it may be consolidated into a single smoothed or average set of data for normal weekday flows. The traffic management data may be stored in fifteen minute intervals daily for a long period of time as a record of the indicator state. The item consists of the following items of data each of which is defined in its own DDE:

historical_stored_incident_data
+ historical_other_routes_use
+ o_d_matrix
+ historical_parking_lot_storage_data
+ historical_processed_traffic_data
+ historical_processed_roadway_env_data
+ historical_traffic_flow_state
+ historical_wide_area_pollution_data
+ historical_traffic_management_storage_data

long_term_data_for_retrieval

This data flow is used within the Manage Traffic function. It contains a subset of the long term data stored by the function which will be used as the basis for traffic data that is sent to other functions. This subset may include the traffic conditions for the past several hours plus the smoothed or average flow over some longer timeframe, e.g. a weekday. The data flow consists of the following data items each of which is defined in its own DDE:

current_incident_data
+ current_other_routes_use
+ parking_lot_storage_data
+ traffic_flow_state
+ wide_area_pollution_data

long_term_traffic_data_for_retrieval

This data flow contains long term traffic information that is provided to other ITS functions for use in providing traveler services. The data flow consists of the following data items each of which is defined in its own DDE:

traffic_flow_state

long_term_traffic_incident_data_for_retrieval
This data flow contains long term traffic incident information that is provided to other ITS functions for use in providing traveler services. The data flow consists of the following data item which is defined in its own DDE:

current_incident_data

M

m_and_c_activity_schedule
This data store is used within the Manage Maintenance and Construction function and contains the current schedule for maintenance and construction activities. It consists of the following data items each of which is defined in its own DDE:

fleet_activity_schedule
+ work_zone_activity_plan
+ m_and_c_work_plans

m_and_c_activity_schedule_for_archive
This data flow is used within the Manage Maintenance and Construction function and contains the current schedule for maintenance and construction activities for archival. It consists of the following data item which is defined in its own DDE:

m_and_c_activity_schedule

m_and_c_activity_schedule_for_archive_attributes
This data flow is used to provide meta data included with maintenance and construction activity data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as activity schedules for various maintenance and construction work. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

m_and_c_activity_status
This data store is used within the Manage Maintenance and Construction function and contains the current status of M&C activities, including work status, materials availability, vehicle fleet status, asset status, field equipment maintenance status, and work zone status. It consists of the following data items each of which is defined in its own DDE:

materials_availability_for_status
+ m_and_c_work_performance
+ m_and_c_fleet_manager_status
+ work_zone_data_for_status

m_and_c_activity_status_for_archive
This data flow is used within the Maintenance and Construction function and contains the current status of M&C and activities, including work status, materials availability, vehicle fleet status, asset status, field equipment maintenance status, etc. This status is created for later archival and it consists of the following data item which is defined in its own DDE:

m_and_c_activity_status

m_and_c_activity_status_for_archive_attributes

This data flow is used to provide meta data included with maintenance and construction activity data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

m_and_c_activity_status_for_mdss

This data flow is used within the Maintenance and Construction function and contains the current status of M&C and activities, including work status, materials availability, vehicle fleet status, asset status, field equipment maintenance status, etc. This status is created for output to the Maintenance Decision Support System and it consists of the following data item which is defined in its own DDE:

m_and_c_activity_status

m_and_c_activity_status_for_personnel

This data flow is used within the Maintenance and Construction function and contains the current status of M&C and activities, including work status, materials availability, vehicle fleet status, asset status, field equipment maintenance status, etc. This status is created for output to the M&C personnel and it consists of the following data item which is defined in its own DDE:

m_and_c_activity_status

m_and_c_activity_status_for_scheduler

This data flow is used within the Maintenance and Construction function and contains the current status of M&C and activities, including work status, materials availability, vehicle fleet status, asset status, field equipment maintenance status, etc. It consists of the following data item which is defined in its own DDE:

m_and_c_activity_status

m_and_c_archive_catalog

This data flow is used to provide the description of the data contained in the collection of maintenance and construction data from the Manage Maintenance and Construction function that has been made available for the Manage Archive Function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g. time range of entries, number of entries; or sample data products.

m_and_c_archive_catalog_request

This data flow from the Manage Archived Data function to the Construction and Maintenance function contains the request for a catalog of the data held by the function. The request for a catalog may include either or both the description of the types of data the archive is interested in or a time frame over which the requested information may be available.

m_and_c_archive_commands_from_personnel

This data flow is used within the Manage Maintenance and Construction function and contains a data administration commands used to control the archival of data to be used by the Manage Archived Data function. These commands may include the data that is to be archived, how the data is processed, how the data is stored, data elements that are deleted, etc.

m_and_c_archive_data

This data flow from the Manage Maintenance and Construction function to the Manage Archived Data function contains the M&C data to be archived along with meta data describing the information. This data can include a catalog of the data held by the function. The data contains information about work zones, maintenance needs, maintenance and construction schedules and

status, etc. This data flow contains the following items each of which is defined in its own DDE:

m_and_c_archive_catalog
+ m_and_c_data_for_archive

m_and_c_archive_data_request
This data flow from the Manage Archived Data function to the Manage Maintenance and Construction function contains the request for the data to be archived. The request for data may include either or both the description of the data required or a time frame over which the requested information may be available.

m_and_c_archive_input
This data flow from the Manage Archived Data function to the Manage Maintenance and Construction function contains the request for the catalog of data and the data itself. This flow also contains a report of status from the archive function. This data flow consists of the following data items each of which is defined in its own DDE:

m_and_c_archive_request
+ m_and_c_archive_status

m_and_c_archive_request
This data flow from the Manage Archived Data function contains the request for data collected and stored by the Manage Maintenance and Construction function. The request can be a request for a catalog of the data held by the function or a request for the data itself. This data flow consists of the following items each of which is defined in its own DDE:

m_and_c_archive_catalog_request
+ m_and_c_archive_data_request

m_and_c_archive_status
This data flow is sent from the Manage Archived Data function to the Manage Maintenance and Construction function. It is the status returned when maintenance and construction archive data is sent to the Manage Archived Data function.

m_and_c_archive_status_to_personnel
This data flow is used within the Manage Maintenance and Construction function and contains the status from the Manage Archived Data function after data was sent to the Manage Archived Data function for archival. The status may be good (the data was correct and received without error) or bad (errors were either found in the data itself or during the transmission of the data).

m_and_c_center_identity
This data flow contains the identity of a maintenance and construction fleet management center that is exchanging information with its fleet of vehicles.

m_and_c_data_archive
This data store is used in the Manage Maintenance and Construction function to hold data that is to be archived by the Manage Archived Data function. This data includes information concerning maintenance and construction activities, work zone activities and intrusions, and maintenance needs information. It consists of the following data items each of which is defined in its own DDE:

m_and_c_archive_catalog
+ m_and_c_data_for_archive

m_and_c_data_for_archive
This data flow is sent by the Manage Maintenance and Construction function and contains information that may be of interest to archive data users systems along with the meta data that is necessary to describe the imported data to the Manage Archived Data function. This data flow contains the following items each of which is defined in its own DDE:

m_and_c_activity_status_for_archive
+ m_and_c_activity_status_for_archive_attributes
+ m_and_c_activity_schedule_for_archive
+ m_and_c_activity_schedule_for_archive_attributes
+ m_and_c_roadway_maint_needs_for_archive
+ m_and_c_roadway_maint_needs_for_archive_attributes
+ m_and_c_maint_resource_needs_for_archive
+ m_and_c_maint_resource_needs_for_archive_attributes
+ m_and_c_winter_maint_needs_for_archive
+ m_and_c_winter_maint_needs_for_archive_attributes
+ work_zone_data_for_archive
+ work_zone_data_for_archive_attributes
+ field_device_status_for_archive
+ field_device_status_for_archive_attributes
+ auto_treatment_system_status_for_archive
+ auto_treatment_system_status_for_archive_attributes
+ infrastructure_data_for_archive
+ infrastructure_data_for_archive_attributes

m_and_c_disaster_response_plan
This data flow contains the resources and work plan that are available from maintenance and construction that may be used for

the current disaster. The data flow consists of the following data items which are defined in their own DDE:

disaster_response_m_and_c_available_resources
+ disaster_response_m_and_c_work_plan

m_and_c_emergency_response_plan_from_personnel
This data flow is used by center personnel to coordinate disaster response and recovery plans with maintenance and construction. It contains the response from maintenance personnel regarding the modified response and recovery plan and evacuation plan.

m_and_c_emergency_response_plan_to_personnel
This data flow is used within the Manage Maintenance and Construction function to present the data for the coordination of response plans between the M&C function and the Emergency management function for disasters and evacuations. This data flow is used to coordinate disaster response and recovery plans with maintenance and construction. It contains information regarding the nature of the disaster, and the preplanned response and recovery plan for maintenance. Given this information, maintenance can provide a plan that it will use that is appropriate for the given disaster.

m_and_c_equipment_id
This data flow contains the identifier for a piece of maintenance and construction equipment (portable dynamic message signs, etc.).

m_and_c_equipment_quantity
This data flow contains the quantity of equipment (cones, portable dynamic message signs, etc.) often used to support construction and maintenance activities.

m_and_c_equipment_status
This data flow contains the status and availability of equipment (cones, portable dynamic message signs, etc.) often used to support construction and maintenance activities.

m_and_c_equipment_type
This data flow contains the type of equipment (cones, portable dynamic message signs, etc.) often used to support construction and maintenance activities.

m_and_c_evacuation_plan
This data flow contains the resources that are available from maintenance and construction modified from the preplanned resources that may be used for an evacuation. The data flow consists of the following data items which are defined in their own DDE:

evacuation_m_and_c_available_resources
+ evacuation_m_and_c_work_plan

m_and_c_evacuation_resource_request
This flow contains a request for maintenance and construction in supporting an evacuation. It provides a set of requested resources, schedules, work plans, etc. that evacuation management has been told are available for use. The data flow consists of the following data item which is defined in its own DDE:

em_resource_request

m_and_c_evacuation_resource_response
This flow contains a response from maintenance and construction in supporting an evacuation. The data flow consists of the following data item which is defined in its own DDE:

em_resource_response

m_and_c_fleet_activity_schedule_for_maint
This data flow is used within the Manage Maintenance and Construction function and contains information on when the maintenance and construction vehicles will be available for preventive and corrective maintenance, and the vehicle utilization to assist in predicting vehicle repair or replacement needs. The data flow consists of the following data items each of which is defined in its own DDE:

fleet_maintenance_availability
+ vehicle_utilization_information

m_and_c_fleet_manager_status
This data flow is used by the fleet management function to report the status of the fleet of maintenance and construction vehicles. It includes for each vehicle the type, equipment configuration, location, operational status, maintenance record, work activity status, and crew/operator status. Additionally, incident information and road network information are included. The data flow consists of the following data items each which is defined in its own DDE:

m_and_c_fleet_status
+ m_and_c_view_of_road_network

m_and_c_fleet_status
This data flow is used within the Manage Maintenance and Construction function and contains a list of the maintenance and construction fleet vehicles available for use. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{vehicle_location_for_mcv
+ vehicle_id_for_mcv
+ mcv_equipment_configuration
+ mcv_vehicle_type
+ operational_data_for_mcv
+ materials_status
+ mcv_crew_status
+ mcv_operator_status
+ mcv_work_activity_status
+ safety_data_for_mcv
+ vehicle_location_for_mcv_tracking
+ date
+ time}
+ current_fleet_maintenance_status
+ fleet_maintenance_record

m_and_c_maint_resource_needs_for_archive

This data flow consists of a report to be archived consisting of the maintenance and construction resources requested by emergency, traffic, and from within the Manage Maintenance and Construction function. These resources include portable dynamic message signs, cones, and other assets. This data flow contains the following items each of which is defined in its own DDE:

m_and_c_resource_request_from_traffic
+ m_and_c_resource_request_from_emerg
+ resource_needs_from_scheduler

m_and_c_maint_resource_needs_for_archive_attributes

This data flow is used to provide meta data included with maintenance and construction resource needs data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

m_and_c_materials_quantity

This data flow contains the quantity of materials (sand, salt, etc.) often used to support construction and maintenance activities.

m_and_c_materials_type

This data flow contains the type of materials (sand, salt, etc.) often used to support construction and maintenance activities.

m_and_c_materials_usage_rate

This data flow contains the rate of application of materials (sand, salt, etc.) often used to support construction and maintenance activities.

m_and_c_plan_feedback

This data flow contains comments and suggested changes to proposed maintenance and construction work plan schedules and activities. This information will be used to influence the work schedule to minimize impact to other system operations and the transportation system.

m_and_c_plan_feedback_from_emerg

This data flow is sent from the Manage Emergency Services function to the Manage Maintenance and Construction function. It contains comments and suggested changes to proposed maintenance and construction work plan schedules and activities. This information will be used to influence the work schedule to minimize impact to other system operations and the transportation system. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_plan_feedback

m_and_c_plan_feedback_from_traffic

This data flow is sent from the Manage Traffic function to the Manage Maintenance and Construction function. It contains comments and suggested changes to proposed maintenance and construction work plan schedules and activities. This information will be used to influence the work schedule to minimize impact to other system operations and the transportation system. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_plan_feedback

m_and_c_plan_feedback_from_transit

This data flow is sent from the Manage Transit function to the Manage Maintenance and Construction function. It contains comments and suggested changes to proposed maintenance and construction work plan schedules and activities. This information will be used to influence the work schedule to minimize impact to other system operations and the transportation system. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_plan_feedback

m_and_c_preplanned_disaster_response_plan

This data flow contains the preplanned disaster response and recovery plan for maintenance and construction. These plans contain maintenance assets, schedules, etc. that has been planned to be utilize prior to the occurrence of a disaster. The data flow consists of the following data items which are defined in their own DDE:

planned_disaster_response_m_and_c_available_resources
+ planned_disaster_response_m_and_c_work_plan

m_and_c_preplanned_evacuation_plan

This data flow contains the preplanned evacuation plan for maintenance and construction. These plans contain maintenance assets, schedules, etc. that has been planned to be utilize in support of an evacuation. The data flow consists of the following data items which are defined in their own DDE:

planned_evacuation_m_and_c_available_resources
+ planned_evacuation_m_and_c_work_plan

m_and_c_resource_request_from_emerg

This data flow is used to request maintenance and construction resources to include portable signs, cones, and other assets that can be used to assist in incident management and clearance, including hazard removal, repair of damage, and any other incident response.

m_and_c_resource_request_from_traffic

This data flow is used to request maintenance and construction resources to include portable signs, cones, and other assets that can be used to divert traffic, create detours, and otherwise manage traffic. It also includes requests for any other assets that may be needed to support of incident management.

m_and_c_resource_response_to_emerg

This data flow is sent to the Manage Emergency Services function from the Manage Maintenance and Construction function to provide the status of the requested resources, including availability, contact information of the agency responding, and deployment status.

m_and_c_resource_response_to_traffic

This data flow is sent to the Manage Traffic function from the Manage Maintenance and Construction function to provide the status of the requested resources, including availability, contact information of the agency responding, and deployment status.

m_and_c_resource_status_for_needs

This data flow is used within the Manage Maintenance and Construction function and contains a list of the resources available, including equipment, maintenance and construction vehicles, and materials based on the most recent status collected. The data flow consists of the following data items each of which is defined in its own DDE:

m_and_c_resources
+ time
+ date

m_and_c_resources

This data flow is used within the Manage Maintenance and Construction function and contains the view of the roadway network for mdss and management personnel. The data flow consists of the following data items each of which is defined in its own DDE:

materials_availability
+ fleet_vehicle_available
+ equipment_availability

m_and_c_resources_avail

This data flow is used within the Manage Maintenance and Construction function and contains a list of the resources available, including equipment, maintenance and construction vehicles, and materials. The data flow consists of the following data items each of which is defined in its own DDE:

m_and_c_resources
+ time
+ date

m_and_c_resources_avail_to_scheduler

This data flow is used within the Manage Maintenance and Construction function and contains a list of the resources available, including equipment, maintenance and construction vehicles, and materials for use when scheduling maintenance and construction activities. The data flow consists of the following data items each of which is defined in its own DDE:

m_and_c_resources
+ time
+ date

m_and_c_road_network_view

This data flow is used within the Manage Maintenance and Construction function and contains the view of the roadway network for management personnel and to support the Maintenance Decision Support System (MDSS). The data flow consists of the following data items each of which is defined in its own DDE:

m_and_c_view_of_road_network_for_personnel
+ m_and_c_view_of_road_network_for_mdss

m_and_c_roadway_maint_needs_for_archive

This data flow is used within the Manage Maintenance and Construction function and provides information for archival concerning the roadway maintenance plan, materials, and vehicle requirements, together with the time and date needed for later analysis. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{roadway_maint_plan
+ mcv_vehicle_type
+ m_and_c_materials_type
+ m_and_c_materials_quantity
+ need_date
+ need_time}

m_and_c_roadway_maint_needs_for_archive_attributes

This data flow is used to provide meta data included with maintenance and construction roadway maintenance needs data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

m_and_c_roadway_needs_to_scheduler

This data flow is used within the Manage Maintenance and Construction function and assists the maintenance activity scheduler by providing the roadway maintenance plan, materials, and vehicle requirements, together with the time and date needed. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{roadway_maint_plan
+ mcv_vehicle_type
+ m_and_c_materials_type
+ m_and_c_materials_quantity
+ need_date
+ need_time}

m_and_c_status_assessment

This data flow is used to communicate an assessment of damage to the transportation system with associated restrictions and the schedule for repair and recovery as reported by maintenance and construction functions during a disaster or other major incident. The data flow consists of the following data items each of which is defined in its own DDE:

m_and_c_status_assessment_for_disaster
+ m_and_c_status_assessment_for_evacuation

m_and_c_status_assessment_for_disaster

This data flow contains an assessment of damage to the transportation system, assembling information collected by the Manage Maintenance and Construction function. It includes information indicating the extent of damage to the transportation infrastructure (e.g., roads, bridges, and tunnels) and ITS field equipment, restrictions that must be imposed based on the assessed damage, and the time frame for repair and recovery.

m_and_c_status_assessment_for_evacuation

This data flow contains an assessment of damage to the transportation system, assembling information collected by the Manage Maintenance and Construction function. It includes information indicating the extent of damage to the transportation infrastructure (e.g., roads, bridges, and tunnels) and ITS field equipment, restrictions that must be imposed based on the assessed damage, and the time frame for repair and recovery.

m_and_c_status_assessment_for_traffic

This data flow contains an assessment of damage to the transportation system, assembling information collected by the Manage Maintenance and Construction function. It includes information indicating the extent of damage to the transportation infrastructure (e.g., roads, bridges, and tunnels) and ITS field equipment, restrictions that must be imposed based on the assessed damage, and the time frame for repair and recovery.

m_and_c_status_from_mcv_operator

This data flow is sent from the maintenance and construction vehicle operator via on-board systems to the vehicle fleet operator and contains the current maintenance and construction status information such as work data, operator status, vehicle_status, and crew status to the vehicle fleet manager. This data flow consists of the following items each of which is defined in its own DDE:

vehicle_id_for_mcv
+ mcv_status_from_operator
+ mcv_crew_status
+ mcv_operator_status
+ mcv_work_activity_status
+ date
+ time

m_and_c_to_emergency

This DFD flow represents the data flows from Manage Maintenance and Construction to Manage Emergency Services. The DFD flow consists of the following data flows each of which is defined in there its DDE:

incident_info_for_emerg
+ m_and_c_work_plans_for_emerg
+ asset_restrictions_for_emerg
+ asset_restrictions_for_em_response
+ roadway_maint_status_for_emerg
+ m_and_c_resource_response_to_emerg
+ work_zone_info_for_emergency
+ road_weather_info_for_emergency
+ alert_notification_status_from_maint
+ disaster_and_evacuation_data_from_m_and_c
+ m_and_c_status_assessment
+ security_surveillance_equip_maint_status
+ security_sensor_equip_maint_status

m_and_c_to_traffic

This DFD flow represents the data flows from Manage Maintenance and Construction to Manage Traffic. The DFD flow consists of the following data flows each of which is defined in its own DDE:

incident_info_for_traffic
+ m_and_c_work_plans_for_traffic
+ m_and_c_resource_response_to_traffic
+ environmental_sensor_control_for_roadway
+ speed_sensor_status

+ variable_speed_limit_status
+ environmental_sensor_control_for_roadway_sensors
+ environmental_sensor_data_for_roadway
+ road_weather_info_for_traffic
+ infrastructure_sensor_control_from_mcv
+ roadway_m_and_c_to_traffic
+ roadway_m_and_c_device_data_to_traffic
+ work_zone_surveillance_data
+ work_zone_device_control_data
+ work_zone_incident_data
+ m_and_c_status_assessment_for_traffic
+ environment_sensor_data_for_traffic

m_and_c_to_transit

This DFD flow represents the data flows from Manage Maintenance and Construction to Manage Transit. The DFD flow consists of the following data flows each of which is defined in its own DDE:

m_and_c_work_plans_for_transit
+ roadway_maint_status_for_transit
+ asset_restrictions_for_transit
+ work_zone_info_for_transit
+ road_weather_info_for_transit

m_and_c_to_traveler

This DFD flow represents the data flows from Manage Maintenance and Construction to Provide Driver and Traveler Services. The DFD flow consists of the following data flows each of which is defined in its own DDE:

intrusion_alert_for_in_vehicle_signing
+ work_zone_intrusion_alert_on_board_for_in_vehicle_signing
+ road_weather_info_for_isp
+ m_and_c_work_plans_for_info_provider
+ roadway_maint_status_for_info_provider
+ asset_restrictions_for_info_provider
+ work_zone_surveillance_data_for_isp
+ field_equip_maint_status_for_isp

m_and_c_transportation_system_status_for_disaster

This data flow consists of a report of the current status of the transportation system. This data is reported to maintenance and construction as an ongoing status during a disaster. The data flow consists of the following data item which is defined in its own DDE:

disaster_transportation_system_status

m_and_c_transportation_system_status_for_evacuation

This data flow consists of a report of the current status of the transportation system. This data is reported to maintenance and construction as an ongoing status during an evacuation. The data flow consists of the following data item which is defined in its own DDE:

evacuation_transportation_system_status

m_and_c_vehicle_maintenance_info

This data flow is used within the Manage Maintenance and Construction function and contains the repair status of the equipment at the repair facility. It consists of the following data items each of which is defined in its own DDE:

current_fleet_maintenance_status
+ fleet_maintenance_record

m_and_c_view_of_road_network

This data flow is used within the Manage Maintenance and Construction function and contains a view of the road network appropriate for assisting the maintenance and construction center personnel, the vehicle fleet manager when dispatching and routing vehicles, and the automated Maintenance Decision Support function. This information represents a consolidation of inputs from private vehicle probes, road network information including travel times, route usage, and incidents and incident response, and environmental information collected from the Manage Traffic and Manage Emergency Services functions. A listing of incident and weather data is provided, as well as a listing by link of road network data, roadway conditions, etc. The data flow consists of the following items each of which is defined in its own DDE:

incident_number
+ incident_location
+ incident_start_time
+ incident_duration
+ incident_type
+ incident_severity
+ incident_traffic_impact
+ incident_response_status_from_emerg

+ env_info_for_road_network
+ link_state_data
+ roadway_environment_conditions
+ asset_damage
+ current_asset_restrictions
+ predicted_road_network_data
+ current_data_for_output
+ evacuation_information_for_m_and_c
+ transportation_information_for_maint_operations

m_and_c_view_of_road_network_for_fleet_manager

This data flow is used within the Manage Maintenance and Construction function and contains a view of the road network appropriate for supporting the maintenance and construction vehicle fleet manager when dispatching and routing vehicles and assigning work activities. This information represents a consolidation of inputs from private vehicle probes, road network information including travel times, route usage, and incidents and incident response, and environmental information collected from the Manage Traffic and Manage Emergency Services functions. The data flow consists of the following item which is defined in its own DDE:

m_and_c_view_of_road_network

m_and_c_view_of_road_network_for_mdss

This data flow is used within the Manage Maintenance and Construction function and contains a view of the road network appropriate for assisting the Manage Maintenance Decision Support function. This information represents a consolidation of inputs from private vehicle probes, road network information including travel times, route usage, and incidents and incident response, and environmental information collected from the Manage Traffic and Manage Emergency Services functions. The data flow consists of the following item which is defined in its own DDE:

m_and_c_view_of_road_network

m_and_c_view_of_road_network_for_personnel

This data flow is used within the Manage Maintenance and Construction function and contains a view of the road network appropriate for supporting the maintenance and construction personnel. This information represents a consolidation of inputs from private vehicle probes, road network information including travel times, route usage, and incidents and incident response, and environmental information collected from the Manage Traffic and Manage Emergency Services functions. The data flow consists of the following item which is defined in its own DDE:

m_and_c_view_of_road_network

m_and_c_view_of_road_network_for_scheduler

This data flow is used within the Manage Maintenance and Construction function and contains a view of the road network appropriate for supporting the Schedule M&C Activities function. This information represents a consolidation of inputs from private vehicle probes, road network information including travel times, route usage, and incidents and incident response, and environmental information collected from the Manage Traffic and Manage Emergency Services functions. The data flow consists of the following item which is defined in its own DDE:

m_and_c_view_of_road_network

m_and_c_winter_maint_needs_for_archive

This data flow is used within the Manage Maintenance and Construction function and provides information for archival concerning the winter treatment plan, materials, and vehicle requirements, together with the time and date needed for later analysis. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{winter_treatment_plan
+ mcv_vehicle_type
+ m_and_c_materials_type
+ m_and_c_materials_quantity
+ need_date
+ need_time}

m_and_c_winter_maint_needs_for_archive_attributes

This data flow is used to provide meta data included with winter maintenance needs data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities

+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

m_and_c_winter_needs_to_scheduler

This data flow is used within the Manage Maintenance and Construction function and assists the maintenance activity scheduler by providing the winter treatment plan, materials, and vehicle requirements, together with the time and date needed. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{winter_treatment_plan
+ mcv_vehicle_type
+ m_and_c_materials_type
+ m_and_c_materials_quantity
+ need_date
+ need_time}

m_and_c_work_performance

This data flow is used within the Manage Maintenance and Construction function and contains data about the status of the work activity performed in the field, including a work activity identifier, progress against expectations, work issues, etc.

m_and_c_work_plans

This data flow contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations.

m_and_c_work_plans_for_emerg

This data flow is sent from the Manage Maintenance and Construction function to the Manage Emergency Services function. It contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans

m_and_c_work_plans_for_info_provider

This data flow is sent from the Manage Maintenance and Construction function to the Provide Driver and Traveler Services function. It contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans

m_and_c_work_plans_for_traffic

This data flow is sent from the Manage Maintenance and Construction function to the Manage Traffic function. It contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans

m_and_c_work_plans_for_transit

This data flow is sent from the Manage Maintenance and Construction function to the Manage Transit function. It contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans

maint_dec_support_parameter_updates

This data flow is within the Manage Maintenance and Construction function and contains the information required to control the maintenance decision support processing function.

manual_brake_input_detected

This data flow provides feedback that the driver has activated the vehicle brakes manually.

manual_input_received
This data flow is used within the Provide Vehicle Control and Monitoring function It contains an indication that manual driver input or some form of automatic control has been selected by the driver.

manual_steering_input_detected
This data flow provides feedback that the driver has activated the vehicle steering manually. It indicates whether the actuator is functioning or if manual input has been detected.

manual_throttle_input_detected
This data flow provides feedback that the driver has activated the vehicle throttle manually. Ii indicated whether actuator is functioning, or if manual input has been detected.

map_archive_catalog
This data flow is used to provide the description of the data contained in the collection of map data from the Map Update Provider that has been made available for the Manage Archive Function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g. time range of entries, number of entries; or sample data products.

map_archive_catalog_request
This data flow from the Manage Archived Data function to the Map Update Provider contains the request for a catalog of the data held by the terminator. The request for a catalog may include either or both the description of the types of data the archive is interested in or a timeframe over which the requested information may be available.

map_archive_data_request
This data flow from the Manage Archived Data function to the Map Update Provider contains the request for the data held by the terminator. The request for data may include either or both the description of the data required or a timeframe over which the requested information may be available.

map_data
This data store is used within the Manage Commercial Vehicles function. It contains digitized map data that is provided with and used as part of a static route selection package to determine routes for commercial vehicles. The whole package including the data will have been obtained from a specialist supplier, and will be capable of providing routes that are the shortest, quickest, etc. without taking any account of current or predicted traffic conditions along the route.

map_data_for_archive
This data flow is sent by the Map Update Provider and contains information that may be of interest to archive data users systems along with the meta data that is necessary to describe the imported data to the Manage Archived Data function. This data flow contains the following items each of which is defined in its own DDE:

imported_map_data_for_archive
+ imported_map_data_attributes

map_data_for_cv_drivers
This data store is used within the Manage Commercial Vehicles function and contains digitized map data which will be used by the commercial vehicle driver's static route selection process. It consists of the following data item which is defined in its own DDE:

map_data

map_data_for_demand_display
This data store is used within the Manage Traffic function and contains digitized map data. This data is for use as background to displays of data about current and predicted traffic and travel demand produced within the facility. The map data will enable the demand data to be shown in its location context to improve its understanding by traffic operations personnel. The data store consists of the following data item which is defined in its own DDE:

map_data_store_contents

map_data_for_emergency_display
This data store is used within the Manage Emergency Services function and contains digitized map data. This data is used as background for displays of data about incidents and emergencies. The map data will enable incidents and emergencies to be shown in their location context thus improving the understanding of their impact and the possible responses by the emergency system operator. The data store consists of the following data item which is defined in its own DDE:

map_data_store_contents

map_data_for_fleet_managers
This data flow is used within the Manage Commercial Vehicles function and contains digitized map data which will be used by the commercial fleet manager's static route selection process. It consists of the following data item which is defined in its own DDE:

map_data

map_data_for_general_use
This data store is used by processes in the Provide Driver and Traveler Services functions as a source of digitized data on the physical layout of the road and highway network. This is provided by the map update provider which is a specialist supplier of this type of data that is outside of ITS. The store consists of the following data item which is defined in its own DDE:

map_data_store_contents

map_data_for_incident_display
This data store is used in the Display and Update Incident Data facility within the Manage Traffic function. It contains digitized map data for use as background to displays of incident data obtained from the stores of either current or predicted incident data. The map data will enable the incident data to be shown in its location context to improve its understanding by Traffic Operations Personnel. It consists of the following data item which is defined in its own DDE:

map_data_store_contents

map_data_for_info_provider_display
This data store is used by processes in the Provide Driver and Traveler Services function as a source of digitized data on the physical layout of the road and highway network. This is provided by the map update provider which is a specialist supplier of this type of data that is outside of ITS. The store consists of the following data item which is defined in its own DDE:

map_data_store_contents

map_data_for_m_and_c_display
This data store is used within the Manage Maintenance and Construction function and contains digitized map data. This data is used as background for displays of data about maintenance and construction activities, including work zones. The map data will also be used as a background for displays of vehicle locations and speed for maintenance and construction vehicle fleet management. The data store consists of the following data item which is defined in its own DDE:

map_data_store_contents

map_data_for_m_and_c_routing
This data store is used within the Manage Maintenance and Construction function and contains digitized map data. This data is used as background for displays to assist in maintenance and construction vehicle routing. The data flow consists of the following data item which is defined in its own DDE:

map_data_for_m_and_c_display

map_data_for_m_and_c_status_display
This data flow is used within the Manage Maintenance and Construction function and contains digitized map data. This data is used as background for displays of data about maintenance and construction activities. The data flow consists of the following data item which is defined in its own DDE:

map_data_for_m_and_c_display

map_data_for_m_and_c_tracking_display
This data flow is used within the Manage Maintenance and Construction function and contains digitized map data. This data is used as background for displays of data to assist in tracking maintenance and construction vehicles. The data flow consists of the following data item which is defined in its own DDE:

map_data_for_m_and_c_display

map_data_for_m_and_c_wz_status_display
This data flow is used within the Manage Maintenance and Construction function and contains digitized map data. This data is used as background for displays of data about work zone activities. The data flow consists of the following data item which is defined in its own DDE:

map_data_for_m_and_c_display

map_data_for_other_routes_selection
This data store is used by processes in the Provide Driver and Traveler Services functions as a source of digitized data on the physical layout of the road and highway network. This is provided by the map update provider which is a specialist supplier of this type of data that is outside of ITS. The store consists of the following items each of which is defined in its own DDE:

map_digitized_data
+ map_link_identity_data
+ map_gazetteer_data
+ map_transit_data
+ map_hri_data

map_data_for_pollution_display
This data store is used in the Manage Emissions facility within the Manage Traffic function. It contains digitized map data for use as background to displays of pollution data obtained from the stores of either pollution state or reference data. The map data will enable the pollution data to be shown in its location context to improve its understanding by emissions operations personnel. It consists of the following data item which is defined in its own DDE:

map_data_store_contents

map_data_for_route_selection

This data store is used by processes in the Provide Driver and Traveler Services function as a source of digitized data on the physical layout of the road and highway network. This is provided by the map update provider which is a specialist supplier of this type of data that is outside of ITS. The store consists of the following items each of which is defined in its own DDE:

map_digitized_data
+ map_link_identity_data
+ map_gazetteer_data
+ map_transit_data
+ map_hri_data

map_data_for_traffic_display

This data store is used in the Display and Output Traffic Data facility within the Manage Traffic function. It contains digitized map data for use as background to displays of traffic data obtained from the stores of either current or long term data. The map data will enable the traffic data to be shown in its location context to improve its understanding by traffic operations personnel. It consists of the following data item which is defined in its own DDE:

map_data_store_contents

map_data_for_transit

This data store is used within the Manage transit function and contains digitized map data. This data is for use in generating transit routes and as the background to displays of data about transit services requested by the transit system operator. The map data will enable the services to be shown in their location context thus improving the understanding by the transit operations personnel. Maps of the transit route network will be produced to suit the geometry of the actual display unit on which the data will be shown in either visual or hardcopy format. The data store consists of the following data item which is defined in its own DDE:

map_data_store_contents

map_data_for_transit_operator

This flow is used within the Manage Transit function to provide up-to-date maps to support the generate of transit routes. This flow consists of the following items each of which is defined in its own DDE:

map_digitized_data
+ map_link_identity_data
+ map_gazetteer_data
+ map_transit_data
+ map_hri_data

map_data_for_transit_routes

This flow is used within the Manage Transit function to provide up-to-date maps to support the generate of transit routes. This flow consists of the following items each of which is defined in its own DDE:

map_digitized_data
+ map_link_identity_data
+ map_gazetteer_data
+ map_transit_data
+ map_hri_data

map_data_for_transit_service

This data flow is used within the Manage Transit function to provide up-to-date map information to support the provision of the transit services data. This flow consists of the following items each of which is defined in its own DDE:

map_digitized_data
+ map_link_identity_data
+ map_gazetteer_data
+ map_transit_data
+ map_hri_data

map_data_for_traveler_displays

This data store is used in the Manage Traveler Information facility within the Provide Driver and Traveler Services function. It contains digitized map data for use as background to displays of trip information requested by the traveler from a kiosk. The map data will enable the trip information to be output to be shown at the kiosk against a background that includes its location context to enable travelers to understand it more easily. It consists of the following data item which is defined in its own DDE:

map_data_store_contents

map_data_for_traveler_personal_displays

This data store is used in the Manage Traveler Information facility within the Provide Driver and Traveler Services function. It contains digitized map data for use as background to displays of trip information requested by the traveler from a personal device. The map data will enable the trip information to be output to be shown on the device against a background that includes its location context to enable travelers to understand it more easily. It consists of the following items each of which is defined in its own DDE:

map_digitized_data
+ map_link_identity_data
+ map_gazetteer_data

+ map_transit_data
+ map_hri_data

map_data_for_vehicle_displays

This data store is used in the Manage Traveler Information facility within the Provide Driver and Traveler Services function. It contains digitized map data for use as background to displays of trip information requested by the traveler from a device onboard a vehicle. The map data will enable the trip information to be output to be shown on the device against a background that includes its location context to enable travelers to understand it more easily. It consists of the following data item which is defined in its own DDE:

map_digitized_data
+ map_link_identity_data
+ map_gazetteer_data
+ map_transit_data
+ map_hri_data

map_data_store_contents

This data store is used by many processes within ITS functions as a source of digitized data on the physical layout of the road and highway network. It will include three types of data, the digitized map data, the details of each link and the gazetteer that details all road and freeway names. This data will be obtained from a specialist supplier and will be accessed in such a way that the choice of supplier will be left open and up to the individual system operators. The link identity data will be updated on a regular basis. The data store consists of the following data items each of which is defined in its own DDE:

map_digitized_data
+ map_link_identity_data
+ map_gazetteer_data
+ map_transit_data
+ map_hri_data

map_digitized_data

This data flow is used by many processes within ITS functions and forms part of the store of digitized map data. It contains data which enables computer generated drawings of the physical road network to be produced in a variety of scales and sizes. These will be produced to suit the geometry of the actual display unit on which the data will be shown in either visual or hardcopy format.

map_gazetteer_data

This data flow is used by many processes within ITS functions and forms part of the store of digitized map data. It contains a list of the names of every road and freeway covered by the digitized data, together with positioning information which enables the name to be placed on a computer generated drawing of the road and freeway network.

map_hri_data

This data locates and describes all AAR listed railroad grade crossings and forms part of the store of digitized map data. This data enables the crossing to be placed on a computer generated drawing of the road and freeway network.

map_link_identity_data

This data flow is used by many processes within ITS functions and forms part of the store of digitized map data. It contains data about the physical characteristics of each link in the road network that enables navigation, e.g. low bridges, sharp bends, one-way streets, physical and administrative turning restrictions, tolls (including schedules), and the required permits and duties for commercial vehicles.

map_transit_data

This data flow forms part of the store of digitized map data. It contains data which enables maps of the transit route network to be produced. These will be produced to suit the geometry of the actual display unit on which the data will be shown in either visual or hardcopy format.

materials_availability

This data flow is used within the Manage Maintenance and Construction function and contains data about the types and quantities of materials available at the storage facilities to assist in assessing resource availability. It consists of the following data items each of which is defined in its own DDE:

storage_facility_id
+ materials_status

materials_availability_for_status

This data flow is used within the Manage Maintenance and Construction function and contains data about the types and quantities of materials available at the storage facilities. It is used to assist in determining the current status of materials usage and availability in maintenance and construction activities. It consists of the following data items each of which is defined in its own DDE:

storage_facility_id
+ materials_status

materials_status

This data flow is used within the Manage Maintenance and Construction function and contains information about the types and quantities of materials used for construction and maintenance activities. It consists of the following data items each of which is

defined in its own DDE:

list_size + list_size{m_and_c_materials_type
+ m_and_c_materials_quantity
+ m_and_c_materials_usage_rate
+ date
+ time}

materials_status_onboard_to_mcv_operator

This data flow is used within the Manage Maintenance and Construction function and contains information about the types of materials stored on-board the vehicle and the materials usage rates for use by the maintenance and construction vehicle operator. It consists of the following data items each of which is defined in its own DDE:

materials_status

materials_status_request

This data flow is used within the Manage Maintenance and Construction function and contains a request for an update on data about the types and quantities of materials available at the storage facility.

mayday_agency_ID

This data flow is used to identify the Mayday service provider that received and processed a Mayday message. This data will accompany the emergency request details sent from the Process Mayday Messages function.

mayday_emergency_data

This data flow is used by the Process Mayday Messages function to forward emergency calls and emergency data from vehicle operators and travelers using personal devices that has been classified as Mayday data to another process where it is then distributed. It contains the following data items, each of which is contained in its own DDE:

emergency_request_driver_details
+ emergency_request_vehicle_details
+ emergency_request_personal_traveler_details
+ mayday_vehicle_tracking
+ mayday_agency_ID

mayday_request_to_operator

This data flow is used within the Manage Emergency Services function to inform the center personnel that a request for emergency assistance has been issued by a driver, automatically by his vehicle, or by a traveler using a personal device. It contains the following data items each of which is defined in its own DDE:

time
+ emergency_request_driver_details
+ emergency_request_vehicle_details
+ emergency_request_personal_traveler_details

mayday_response_from_operator

This data flow is used within the Manage Emergency Services function to confirm that the request for emergency assistance previously sent to the center personnel by a driver, automatically by his vehicle, or by a traveler using a personal device has been received. The data flow contains the following data items each of which is defined in its own DDE:

confirmation_flag

mayday_vehicle_tracking

This data store contains a recorded log of the vehicles and a historical track of the locations that have been recorded by the mayday function. This data flow consists of the following items each of which is defined by its own DDE:

list_size
+ list_size{date
    + time
    + vehicle_identity
    + vehicle_location_for_incidents}

mcv_crew_status

This data flow is used within the Manage Maintenance and Construction function and contains data about the field personnel working on a given maintenance and construction activity. It includes some form of personnel identifiers, vehicle assignments, and other pertinent crew status.

mcv_dispatch_instructions

This data is used within the Manage Maintenance and Construction function and contains dispatch instructions, including corrective actions, from the vehicle fleet manager based on input parameters from center personnel.

mcv_equipment_configuration

This data flow contains the configuration of the equipment on a maintenance and construction vehicle. For example, this could include the types of special attachments to the vehicle that transform a snowplow truck into some other type of maintenance vehicle during the summer.

mcv_infrastructure_sensor_control

This data flow provides control commands from a maintenance and construction center for infrastructure monitoring sensors located on maintenance and construction vehicles and on roadside equipment. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_control_of_onboard_devices
+ infrastructure_sensor_control_from_mcv

mcv_infrastructure_sensor_data

This data flow provides data to the Manage Maintenance and Construction function on the condition of the infrastructure as reported by sensors on maintenance and construction vehicles and roadside equipment. This infrastructure includes bridges, culverts, signs, and other roadway infrastructure. The data can be in raw data or image form. The data is collected by the maintenance and construction vehicle and passed along to a center which can then assess the current health of the infrastructure. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_data_from_onboard_devices
+ infrastructure_sensor_data_for_mcv

mcv_infrastructure_sensor_status

This data flow provides the operational status (state of the device, configuration, and fault data) of infrastructure sensor equipment on-board a maintenance and construction vehicle, for the Manage Maintenance and Construction function. This field equipment includes sensors on bridges, culverts, signs, and other roadway infrastructure. By monitoring this data flow, the receiving process can monitor the configuration, health and current status of field equipment, add it to other sources of information, and pass along to other processes for inventory update and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_status_of_onboard_devices
+ infrastructure_sensor_status_for_mcv

mcv_materials_status

This data flow is used within the Manage Maintenance and Construction function and contains information about the types of materials stored on-board the vehicle and the materials usage rates for use by the vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

vehicle_id_for_mcv
+ materials_status

mcv_operational_data

This data flow is used within the Manage Maintenance and Construction function and contains information about the maintenance and construction activity performed by the vehicle. Operational data includes the operational state of the maintenance equipment (e.g., blade up/down, spreader pattern) and a record of the actual work performed for use by the vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

vehicle_id_for_mcv
+ mcv_equipment_configuration
+ mcv_vehicle_type
+ operational_data_for_mcv

mcv_operator_status

This data flow is used within the Manage Maintenance and Construction function and contains data about the operator or a maintenance and construction vehicle, including some form of personnel identifier, vehicle assignment, and other pertinent driver status.

mcv_status_from_operator

This data flow is sent from the maintenance and construction vehicle operator via on-board systems to the vehicle fleet operator and contains the current status of the maintenance and construction vehicle, as reported by the operator.

mcv_tracking_data_for_fleet_manager

This data flow is used within the Manage Maintenance and Construction function and contains location data and analysis for each maintenance and construction vehicle in the fleet, including the speed, and historical tracking data. This data is used to provide a complete view of the status of the maintenance and construction vehicle fleet to the vehicle fleet manager. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{vehicle_id_for_mcv
+ vehicle_location_for_mcv_tracking
+ vehicle_location_for_mcv_tracking_history
+ vehicle_speed
+ vehicle_location_analysis_outputs}
+ list_size{m_and_c_equipment_type
+ m_and_c_equipment_id}

mcv_tracking_data_for_personnel

This data flow is used within the Manage Maintenance and Construction function and contains location data for each piece of

maintenance and construction equipment and vehicle in the fleet, including the speed, and historical tracking data. This data is used to provide a complete view of the status of the maintenance and construction center personnel. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{vehicle_id_for_mcv
+ vehicle_location_for_mcv_tracking
+ vehicle_location_for_mcv_tracking_history
+ vehicle_speed
+ vehicle_location_analysis_outputs}
+ list_size{m_and_c_equipment_type
+ m_and_c_equipment_id}

mcv_vehicle_systems_control_by_fleet_manager
This data flow is used by the maintenance and construction vehicle fleet manager to remotely control the systems on-board the maintenance and construction vehicle, and includes control data to support materials dispersion and other functions depending upon the type of vehicle. These control parameters include device configuration, system reset, or activation.

mcv_vehicle_type
This data flow is used within the Manage Maintenance and Construction function and contains information about the type of maintenance and construction vehicle. This flow represents an identifier to distinguish between snowplows, bucket trucks, salt/sand trucks, etc.

mcv_winter_dispatch_instructions
This data is used within the Manage Maintenance and Construction function and contains dispatch instructions for vehicle operators from the fleet manager based on input parameters from center personnel, specifically for winter conditions. This could include a treatment route, treatment application rates, start and end times, and other treatment instructions.

mcv_work_activity_status
This data flow is used within the Manage Maintenance and Construction function and contains data about the status of the work activity performed in the field, including a work activity identifier, progress against expectations, work issues, etc.

mdss_recommended_actions_for_operator
This data flow is used within the Manage Maintenance and Construction function and contains the recommended roadway treatment actions output from the maintenance decision support system function.

mdss_recommended_actions_for_personnel
This data flow is used within the Manage Maintenance and Construction function and contains a recommended course of action generated by the automated Maintenance Decision Support System, based on processing parameters input by the center personnel. The recommended actions result from inputs including environmental conditions, road network information, maintenance and construction activity status, and available resources.

mdss_recommended_actions_for_resource_needs
This data flow is used within the Manage Maintenance and Construction function and contains a recommended course of action for managing resource needs. It is generated by the automated Maintenance Decision Support System and based on processing parameters input by the center personnel. The recommended actions result from inputs including environmental conditions, road network information, maintenance and construction activity status, and available resources.

mdss_recommended_actions_for_roadway_maint_needs
This data flow is used within the Manage Maintenance and Construction function and contains a recommended course of action for routine roadway maintenance generated by the automated Maintenance Decision Support System, based on processing parameters input by the center personnel. The recommended actions result from inputs including environmental conditions, road network information, maintenance and construction activity status, and available resources.

mdss_recommended_actions_for_winter_treatment_needs
This data flow is used within the Manage Maintenance and Construction function and contains a recommended course of action for winter maintenance generated by the automated Maintenance Decision Support System, based on processing parameters input by the center personnel. The recommended actions result from inputs including environmental conditions, road network information, maintenance and construction activity status, and available resources.

media_identity
This data flow contains the identity of the media that is reporting an incident. The details of this incident are contained in a parallel data flow.

media_incident_data_updates
This data flow is used within the Manage Traffic function. It contains changes to the data about incidents in the current incidents data stores, which have been input by the Media. It consists of one of the following data items each of which is defined in its own DDE:

current_incidents_data
+ media_identity

median_type
This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains the standard type of median for the separation of opposing or parallel traffic links.

meso_scale_surface_trans_weather_forecasts

This data flow contains forecasts of surface transportation related weather variables and weather related events at time horizons from one to several hours and spatial horizon of one to 100 km. The time horizon is defined as the time between the observations on which the forecast is based (alternatively, when the forecast process is started) and the time that the forecast applies to. Weather forecasts of this scale could include 'nowcasts'. It consists of the following data items each of which is defined in its own DDE:

surface_trans_weather_forecast_details
+ surface_trans_weather_advisories

meso_scale_weather_forecasts

This data flow contains forecasts of atmospheric weather variables and weather related events at time horizons from one to several hours and spatial horizon of one to 100 km. The time horizon is defined as the time between the observations on which the forecast is based (alternatively, when the forecast process is started) and the time that the forecast applies to. Weather forecasts of this scale could include 'nowcasts'. It consists of the following data items each of which is defined in its own DDE:

weather_forecast_details
+ weather_warnings
+ weather_watches
+ weather_advisories

methods_applied

This data flow defines any methods that have been applied to the original data and includes a description of the actions performed on the data, e.g. aggregations, summarizations, transformations, privacy data stripped, etc.

micro_scale_surface_trans_weather_forecasts

This data flow contains forecasts of surface transportation related weather variables and weather related events at a time horizon of several minutes and a spatial horizon of several meters or less. The time horizon is defined as the time between the observations on which the forecast is based (alternatively, when the forecast process is started) and the time that the forecast applies to. It consists of the following data item which is defined in its own DDE:

surface_trans_weather_forecast_details

misc_trav_info_collected_for_personnel

This data flow is used within the Provide Driver and Traveler Services function and contains information for use by personnel about the information collected from parking, yellow pages, weather, and event information providers. The data flow consists of the following data item which is defined in its own DDE:

misc_traveler_information

misc_trav_info_data_collection_parameters

This data contains parameters to be used to govern miscellaneous traveler data collection (road weather conditions, yellow pages data, parking information, etc.) to support traveler services (trip planning, broadcast data, etc.).

misc_traveler_information

This data flow includes the contents of a store of information received from a miscellaneous group of traveler information service providers including media outlets, parking operators, event promoters, weather services, yellow pages service providers, as well as other ISPs (e.g. wholesale data providers). This data consists of the following items each of which is defined in its own DDE:

foisp-misc_traveler_information
+ static_parking_information_for_isp
+ dynamic_parking_information_for_isp
+ parking_lot_availability
+ fevp-event_information_for_travelers
+ fm-traveler_information
+ weather_observations
+ weather_forecasts
+ road_weather_info_for_isp
+ traffic_road_weather_data_for_isp
+ travel_services_data
+ env_probe_data_from_vehicles
+ fws-env_sensor_data_for_isp

miso_scale_surface_trans_weather_forecasts

This data flow contains forecasts of surface transportation related weather variables and weather related events at time horizons from approximately minutes to an hour, and a spatial horizon of meters to a kilometer. The time horizon is defined as the time between the observations on which the forecast is based (alternatively, when the forecast process is started) and the time that the forecast applies to. Weather forecasts of this scale could include 'nowcasts'. It consists of the following data items each of which is defined in its own DDE:

surface_trans_weather_forecast_details
+ surface_trans_weather_advisories

miso_scale_weather_forecasts

This data flow contains forecasts of atmospheric weather variables and weather related events at time horizons from approximately minutes to an hour, and a spatial horizon of meters to a kilometer. The time horizon is defined as the time between the observations on which the forecast is based (alternatively, when the forecast process is started) and the time that the forecast applies to. Weather forecasts of this scale could include 'nowcasts'. It consists of the following data items each of which is defined in its own DDE:

weather_forecast_details
+ weather_warnings
+ weather_advisories

modes

This data flow is used within many functions and forms part of the data used for route requests and trip plans. It defines the mode(s) of transport to be used on a requested route or proposed trip. The following different modes are supported and may be used in any trip request. The transportation modes may include but are not limited to own private car, part of public transit services, scheduled air service, sea borne transport other than ferry, passenger or vehicle ferry, pedal or motor powered bicycle, walking, van pool, car pool, express bus service, specialized_service, and emergency vehicle.

multi_use_trail_information

This data flow contains details contains details for multi-use trail information (available trails, trails under construction, etc.) available to pedestrians and bicycle travelers.

multimodal_alert

This data flow contains traveler alerts that report regionally relevant ferry, air, and rail service disruptions and may include port closures, general delays, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions including the traveler's location, search radius, or timeframe, as well as configurable alert thresholds (e.g., severity of the alert).

multimodal_archive_catalog

This data flow is used to provide the description of the data contained in the collection of multimodal data from the Multimodal Transportation Service Provider that has been made available for the Manage Archive Function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g. time range of entries, number of entries; or sample data products.

multimodal_archive_catalog_request

This data flow from the Manage Archived Data function to the Multimodal Transportation Service Provider contains the request for a catalog of the data held by the terminator. The request for a catalog may include either or both the description of the types of data the archive is interested in or a timeframe over which the requested information may be available.

multimodal_archive_data_request

This data flow from the Manage Archived Data function to the Multimodal Transportation Service Provider contains the request for the data held by the terminator. The request for data may include either or both the description of the data required or a timeframe over which the requested information may be available.

multimodal_crossing_sensor_data

This data flow is used within the Manage Traffic function and contains the multimodal crossing data obtained from processing the other inputs from sensors around the road network. It consists of the following data items each of which is defined in its own DDE:

crossing_list + 1{crossing_close_time
+ crossing_close_duration}crossing_list

multimodal_crossing_sensor_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of multimodal crossing sensor equipment for the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can monitor the configuration, health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

multimodal_crossing_sensor_status

This data flow provides the operational status (state of the device, configuration, and fault data) of multimodal crossing sensor equipment for the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

multimodal_data

This data flow is sent by the Multimodal Transportation Service Provider and contains multimodal passenger information such as origin and destination data or fare information that may be of interest to archive data users systems.

multimodal_data_attributes

This data flow is used to provide meta data included with multimodal data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

multimodal_data_for_alerts

This data flow contains traveler alerts that report regionally relevant ferry, air, and rail service disruptions and may include port closures, general delays, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions.

multimodal_data_for_archive

This data flow is sent by the Multimodal Transportation Service Provider and contains multimodal passenger information that may be of interest to archive data users systems along with the meta data that is necessary to describe the imported data to the Manage Archived Data function. This data flow contains the following items each of which is defined in its own DDE:

multimodal_data
+ multimodal_data_attributes

multimodal_data_for_broadcast

This data flow is used within the Provide Driver and Traveler Services function. It contains data about the multimodal (non roadway) service available, including transfer points, for the broadcast traveler information application. The data flow consists of the following data items each of which is defined in its own DDE:

air_services_details
+ ferry_services_details
+ rail_services_details
+ transit_transfer_cluster_list
+ non_motorized_services_details

multimodal_data_for_centers

This data flow is used within the Provide Driver and Traveler Services function. It contains data about the multimodal (non roadway) services available, including transfer points, for transmission to other operational centers. The data flow consists of the following data items each of which is defined in its own DDE:

air_services_details
+ ferry_services_details
+ rail_services_details
+ transit_transfer_cluster_list
+ non_motorized_services_details

multimodal_data_for_interactive

This data flow is used within the Provide Driver and Traveler Services function. It contains the response to the request for data about the multimodal (non roadway) service available, processed for traveler consumption, including transfer points, for the interactive traveler information application. The data flow consists of the following data items each of which is defined in its own DDE:

air_services_details

+ ferry_services_details
+ rail_services_details
+ transit_transfer_cluster_list
+ non_motorized_services_details

multimodal_data_for_route_selection

This data flow is used within the Provide Driver and Traveler Services function. It contains data about the multimodal (non roadway) service available, including transfer points, for the route selection application. The data flow consists of the following data items each of which is defined in its own DDE:

air_services_details
+ ferry_services_details
+ rail_services_details
+ transit_transfer_cluster_list
+ non_motorized_services_details

multimodal_data_for_trip_planning

This data flow is used within the Provide Driver and Traveler Services function. It contains the response to the request for data about the multimodal (non roadway) service available, including transfer points, that will suit a traveler's proposed trip plan. The data flow consists of the following data items each of which is defined in its own DDE:

air_services_details
+ ferry_services_details
+ rail_services_details
+ transit_transfer_cluster_list
+ non_motorized_services_details

multimodal_data_request

This data flow is used within the Provide Driver and Traveler Services function. It contains a request for data about multimodal (non roadway) services for use in various applications. The request may specify the origin and destination of the multimodal service, plus the modes that can be considered, the arrival and departure times and multimodal transfer points and clusters. The data flow consists of the following data items each of which is defined in its own DDE:

multimodal_service_arrival_time
+ multimodal_service_departure_time
+ multimodal_service_destination
+ multimodal_service_origin
+ multimodal_service_possible_modes
+ multimodal_transit_transfer_clusters

multimodal_data_request_for_alerts

This data flow is used to request specific ferry, air, and rail service disruption information based on traveler alert subscriptions.

multimodal_data_request_from_interactive

This data flow is used within the Provide Driver and Traveler Services function. It contains a request for data about multimodal (non roadway) services that are available for use in interactive traveler information applications. The data flow consists of the following item which is defined in its own DDE:

multimodal_data_request

multimodal_data_request_from_route_selection

This data flow is used within the Provide Driver and Traveler Services function. It contains a request for data about multimodal (non roadway) services that are available for use in route selection applications. The data flow consists of the following item which is defined in its own DDE:

multimodal_data_request

multimodal_data_request_from_trip_planning

This data flow is used within the Provide Driver and Traveler Services function. It contains a request for data about multimodal (non roadway) services that are available for use as part of a traveler's trip plan. The request specifies the origin and destination of the multimodal service, which may not be the same as those for the trip plan as a whole, plus the modes that can be considered, the arrival and departure times and multimodal transfer points and clusters. The data flow consists of the following item which is defined in its own DDE:

multimodal_data_request

multimodal_service_arrival_time

This data flow is used within the Provide Driver and Traveler Services function. It contains the time at which a multimodal service must arrive at the destination for this type of service within a traveler's proposed trip plan. The destination may not be the final destination of the trip, or of the multimodal service. The time may also have to fit in with other modes of travel being used by the trip plan. The data flow consists of the following data item which is defined in its own DDE:

time

multimodal_service_confirmation

This data flow is used within the Provide Driver and Traveler Services function to confirm that a traveler's request for an alternate mode service booking has been accepted. It consists of the following data item which is defined in its own DDE:

reservation_status
+ traveler_identity

multimodal_service_departure_time

This data flow is used within the Provide Driver and Traveler Services function. It contains the time at which a multimodal service must depart from the origin for this type of service within a traveler's proposed trip plan. The origin may not be the start point of the trip, or of the multimodal service. The time may also have to fit in with other modes of travel being used by the trip plan. The data flow consists of the following data item which is defined in its own DDE:

time

multimodal_service_destination

This data flow is used within the Provide Driver and Traveler Services function. It contains the destination of a multimodal service within a traveler's proposed trip plan. It may not be the final destination of the trip, or of the multimodal service and may have to fit in with other modes of travel being used by the trip plan. The data flow consists of the following data item which is defined in its own DDE:

route_point

multimodal_service_details_data

This data store is used within the Provide Driver and Traveler Services function. It contains data about air, heavy rail and ferry services that has been supplied by the multimodal transportation service providers. This data has been obtained in response to the requirements of traveler's trip plan requests and are retained to reduce the number of times the providers have to be accessed to provide the data. This store contains the following data items each of which is defined in its own DDE:

air_services_details
+ ferry_services_details
+ rail_services_details
+ transit_transfer_cluster_list
+ non_motorized_services_details

multimodal_service_origin

This data flow is used within the Provide Driver and Traveler Services function. It contains the origin of a multimodal service within a traveler's proposed trip plan. It may not be the start point of the trip, or of the multimodal service and may have to fit in with other modes of travel being used by the trip plan. The data flow consists of the following data item which is defined in its own DDE:

route_point

multimodal_service_possible_modes

This data flow contains the types of multimodal service that can be used as part of a traveler's proposed trip plan including airlines, ferry services, and heavy rail operations, and non-motorized transportation services.

multimodal_services_details

This data flow is used within the Provide Driver and Traveler Services function. It contains details of services provided by non-road based transportation service providers such as heavy rail companies, ferry operators and airlines that are best suited to a traveler's trip plan. The data flow consists of the following data items each of which is defined in its own DDE:

air_services_details
+ ferry_services_details
+ transit_transfer_cluster_list
+ transit_transfer_point_list
+ rail_services_details

multimodal_transit_transfer_clusters

This data flow contains transfer points and clusters between various modes of transit transportation, including bus and rail, for example. These transfer clusters can be used as part of a traveler's proposed trip plan.

multimodal_traveler_data

This data includes the contents of a data store used to collect information from multimodal transportation service providers and other traveler information service providers to support the Provide Driver and Traveler Services functions. It consists of the following items each of which is defined in its own DDE:

fmtsp-air_services
+ fmtsp-ferry_services
+ fmtsp-non_motorized_services
+ fmtsp-rail_services
+ fmtsp-transit_transfer_clusters
+ foisp-multimodal_data

multimodal_traveler_data_collected_for_personnel
This data flow is used within the Provide Driver and Traveler Services function and contains information for use by personnel about the information collected from multimodal transportation service providers. The data flow consists of the following data item which is defined in its own DDE:

multimodal_traveler_data

multimodal_traveler_data_collection_parameters
This data contains parameters to be used to govern multimodal traveler data collection (air, ferry, rail, etc.) to support traveler services (trip planning, broadcast data, etc.).

N

navigable_map_traveler_update_cost
This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains the cost of an update to the navigable map database used for on-line traveler guidance. The data flow consists of the following data item which is defined in its own DDE:

cost

navigable_map_vehicle_update_cost
This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains the cost of an update to the digitized map data used for on-line vehicle guidance. It consists of the following data item which is defined in its own DDE:

cost

near_term_status
This data flow represents the near term status of the roadway at an HRI and includes pertinent information relative to anticipated device operation. It is used to predict imminent device actions to allow early warnings with regard to unexpected behaviors.

need_date
This data flow contains the calendar date on which a specific activity or item is needed.

need_time
This data flow contains the time at which a specific activity or item is needed.

network_and_device_inventory
This data flow contains roadway network data that defines the links and intersections to support the location of devices and the location of events between operational centers. It consists of the following data items each of which is defined in its own DDE:

road_network
+ road_control_devices
+ highway_network
+ highway_control_devices

network_status_from_traffic_for_disaster
This data flow contains status of the traffic network during disaster situations. This may be used to send high-level status of the traffic network situation or to send details of current and forecasted traffic information, traffic incident information, environmental readings, and other road network status for use in developing disaster response and recovery plans.

network_status_from_traffic_for_evacuation
This data flow contains status of the traffic network for evacuation situations. This may be used to send high-level status of the traffic network situation or to send details of current and forecasted traffic information, traffic incident information, environmental readings, and other road network status for use in evacuation planning and execution.

new_sensor_static_data
This data flow is used within the Manage Transit function. It contains data that is loaded into the store of static data used in the processing of data received from traffic sensors. It consists of the following data item which is defined in its own DDE:

static_data_for_sensor_processing

node_list
This data flow is used within the Manage Traffic function and contains a list of nodes for which data is being provided. These nodes will comprise all of those on both the road (surface street) and highway network served by the function. The data flow consists of the following data items each of which is defined by its own DDE:

list_size
+ 1{link_identity}list_size

non_motorized_service_costs
This data flow contains details of the costs for a traveler's use of the non motorized services that may be suitable for use by a

traveler as part of a proposed trip. It consists of the following data item each of which is defined in its own DDE:

cost

non_motorized_service_routes
This data flow contains details of the non-motorized service routes. These may be suitable for use by a traveler as part of a proposed trip.

non_motorized_services_details
This data flow is used within the Provide Driver and Traveler Services function and contains details of the non-motorized service(s) that have been found to be suitable for use by a traveler as part of a proposed trip. It consists of the following data items each of which is defined in its own DDE:

non_motorized_service_costs
+ non_motorized_service_routes

number_of_lanes
This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains the lowest number of lanes at any point in the link.

O

o_d_matrix
This data flow contains an origin-destination (o-d) matrix that has been derived from the other traffic data, such as that obtained from video images of traffic. It will apply to the road (surface street) and highway network in the geographic area served by the function. The data will comprise a list of o-d pairs and the traffic flow between them, where the pairs will be identified by link identities.

object_detection_sensor_control
This data flow provides control commands for object detection sensors located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure. etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ object_sensor_control_data}

object_detection_sensor_data
This data flow contains actual sensor readings collected from object detection sensors located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure. etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ object_sensor_data_collected}

object_detection_sensor_data_for_field_proc
This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from object detection sensors located in areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ object_sensor_data_collected

object_detection_sensor_status
This data flow is used within the Manage Emergency Services function to report the operational status (state of the sensor device, configuration, and fault data) of an object detection sensor located in secure areas typically away from travelers such as bridges, tunnels, roadway infrastructure, etc. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_device_status}

object_sensor_control_data
This data flow provides control commands for a single object detection sensor. These commands can be used to configure the sensor and to define processing parameters, including definition of thresholds for object detection.

object_sensor_data_collected
This data flow represents the output of a single object detection sensor located in a secure area.

object_sensor_processed_data
This data flow is used within the Manage Emergency Services function and contains the data produced by processing object detection sensor data. It is analyzed, correlated with other sensor data, and used to detect potential threats in secure areas.

oem_disaster_response_plan
This data flow contains the resources that are available from other emergency management centers that may be used to respond to and recover from the current disaster. The data flow consists of the following data item which is defined in its own DDE:

disaster_response_oem_available_resources

oem_emergency_status_report
This flow contains the status of other emergency management in supporting an emergency event.

oem_evacuation_plan
This data flow contains the resources that are available from other emergency management centers that may be used to support the evacuation. The data flow consists of the following data item which is defined in its own DDE:

evacuation_oem_available_resources

oem_preplanned_disaster_response_plan
This data flow contains the preplanned disaster response and recovery plan for other emergency management centers. These plans contain assets, schedules, etc. that the other emergency center has planned to utilize prior to the occurrence of a disaster. The data flow consists of the following data item which is defined in its own DDE:

planned_disaster_response_oem_available_resources

oem_preplanned_evacuation_plan
This data flow contains the preplanned evacuation plans managed by other emergency management centers. These plans contain assets, schedules, etc. that the other emergency center has planned to utilize in support of an evacuation. The data flow consists of the following data item which is defined in its own DDE:

planned_evacuation_oem_available_resources

on_board_intrusion_detection_device_control
This data flow contains control parameters for intrusion detection devices that have been installed on a maintenance and construction vehicle. These parameters may cover things such as device configuration or device reset.

on_board_intrusion_detection_device_status
This data flow provides the operational status (state of the device, configuration, and fault data) of intrusion detection equipment located on a maintenance and construction vehicle. It consists of the following data items each of which is defined in its own DDE:

vehicle_id_for_mcv
+ sensor_identity
+ sensor_device_status

on_board_traveler_alarm_response
This data flow provides an audio or textual response to a traveler who has initiated an alarm. The response might indicate the response actions being taken, actions the traveler should take, or ask for additional information from the traveler.

on_board_traveler_alarm_response_from_transit
This data flow provides an audio or textual response to a traveler who has initiated an alarm. The response might indicate the response actions being taken, actions the traveler should take, or ask for additional information from the traveler.

on_board_work_zone_device_status
This data flow contains the operational status (state of the device, configuration, and fault data) of all work zone devices monitored or controlled on-board a maintenance and construction vehicle. These devices include dynamic message signs, highway advisory radios, closed circuit television cameras, intrusion detection devices, and intrusion alert devices. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ equip_identity
+ equip_device_status}

on_board_work_zone_device_status_for_operator
This data flow contains the operational status (state of the device, configuration, and fault data) of all work zone devices monitored or controlled on-board a maintenance and construction vehicle. These devices include dynamic message signs, highway advisory radios, closed circuit television cameras, intrusion detection devices, intrusion alert devices, or barrier systems. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ equip_identity
+ equip_device_status}

on_demand_archive_request

This data flow within the Manage Archived Data function contains the user system request for new user-defined data to be imported into the archive or for data from an ITS source to be collected that is not already part of the archive data.

operational_data_for_mcv

This data flow is used within the Manage Maintenance and Construction function and contains information about the maintenance and construction activity performed by the vehicle. Operational data includes the operational state of the maintenance equipment (e.g., blade up/down, spreader pattern, equipment configuration) and a record of the actual work performed.

operations_incident_data_updates

This data flow is used within the Manage Traffic function. It contains changes to the data about incidents in the current incidents or planned events data stores or data in the defined incident responses data store, which have been input by Traffic Operations Personnel. It consists of one of the following data items each of which is defined in its own DDE:

incident_info_type
+ incident_location
+ incident_start_time
+ incident_duration
+ incident_type
+ incident_severity
+ incident_traffic_impact
+ traffic_impact_criteria

operator_control_of_on_board_work_zone_devices

This data flow contains control parameters sent from the maintenance and construction field personnel for control of work zone devices that are on a maintenance and construction vehicle. The devices controlled include closed circuit TV, dynamic message signs, highway advisory radio intrusion detection devices, intrusion alert devices, or barrier systems (gates and other automated systems for roadway entry control) . These parameters may cover things such as device configuration or device reset. For the cctv the control flow also includes pan, tilt, and zoom plus other picture controls.

operator_log_for_incidents_data

This data store is used within the Manage Traffic function to log and store incidents data reported to the traffic operations personnel. The data flow contains the following data items each of which is defined in its own DDE:

traffic_operations_resource_response
+ traffic_operations_resource_request
+ ftop-resource_request
+ ttop-resource_response
+ m_and_c_resource_response_to_traffic
+ m_and_c_resource_request_from_traffic

operator_log_for_traffic_data

This data store is used in the log and store Traffic Data within the Manage Traffic function. It contains traffic information requests reported to the traffic operations personnel. It consists of the following data items which are defined in its own DDE:

ftop-traffic_information_requests
+ retrieved_traffic_operations_data
+ request_traffic_operations_data
+ ttop-traffic_control_information_display

operator_to_sensor

This flow sends data from the Display and Output Traffic Data function to the Process Sensor Data function. It consists of the following items each of which is defined in its own DDE:

sensor_configuration_data
+ road_user_protection_device_configuration

origin

This data flow is used within the Provide Driver and Traveler Services function. It defines the origin point for a trip request or a route to be used by a traveler or a vehicle. In some instances it will be used as the origin for the use of a particular mode within a trip, e.g. the part of the route for the trip that is to be provided by walking, or ridesharing, or an multimodal service provider. It consists of the following data item which is defined in its own DDE:

route_point

other_archive_data

This data flow from the Manage Archive function to the Coordinate Archives function contains data drawn from the archive data store that is to be sent to other archives as part of data mining or fusion activities across multiple archives. This data flow may also contain any meta data from the archive necessary to describe the data provided.

other_archive_data_input

This data flow from the Coordinate Archive function to the Manage Archive function contains the data and meta data from other archives. This data is sent based on requests from local user systems to retrieve data that is not located within the local archive. This request for data is to support the activities of mining or fusion of data across multiple archives.

other_archive_data_request

This data flow from the Manage Archive function to the Coordinate Archive function contains the request for data that may be located in other archives. This data request is built based on requests from user systems to retrieve data that is not located within the local archive but is known to exist in other archives based on the global schema that is being maintained.

other_archive_data_request_input

This data flow from the Coordinate Archive function to the Manage Archive function contains the request from other archives for data that may be located in the local archive. This data request is built based on requests from user systems of other archives to retrieve data that is not located within their local archive. This request for data is to support the activities of mining or fusion of data across multiple archives.

other_control_data_for_highways

This data flow is used within the Manage Traffic function and contains indicator and lane control signal data. It consists of the following data items each of which is defined in its own DDE:

other_indicator_highway_requested_state

other_control_data_for_roads

This data flow contains the control data for indicator data operating at the roadside on roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

other_indicator_control_data_for_roads

other_current_incidents

This data flow is used within the Manage Traffic function and contains information about incidents which are currently taking place on links in areas served by adjacent traffic management centers (TMCs). The data flow consists of the following data items each of which is defined in its own DDE:

tmc_identity
+ list_size
+ list_size{current_incidents_data}

other_data_source_catalog

This data flow is used to provide the description of the data from Other Data Sources that has been made available for the Manage Archive Function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g. time range of entries, number of entries; or sample data products.

other_data_source_catalog_request

This data flow from the Manage Archived Data function to the Other Data Sources terminator contains the request for a catalog of the data held by the terminator. The request for a catalog may include either or both the description of the types of data the archive is interested in or a timeframe over which the requested information may be available.

other_dms_data

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators through the use of dynamic message (DMS) and other types of signs on the roads. It consists of the following data items each of which is defined in its own DDE:

other_indicator_sign_control_data_for_roads
+ other_indicator_sign_control_data_for_hri

other_dms_status

This data flow is used within the Manage Traffic function and contains data about the text strings of information to be output to drivers on freeways in the geographic and/or jurisdictional area(s) served by the other traffic management functions. The data flow consists of the following data items each of which is defined in its own DDE:

dms_status
+ roadway_information_incident_updates

other_har_data

This data flow is used within the Manage Traffic function and contains the HAR data, both program and management, used to define the output of a Highway Advisory Radio (HAR) operating at the roadside on highways in the geographic and/or jurisdictional area(s) served by other traffic management functions. It consists of the following data items each of which is defined in its own DDE:

har_identity
+ har_program
+ har_management_data

other_har_status

This data flow is used within the Manage Traffic function and contains the Highway Advisory Radio status for HARs, operating at the roadside on roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

har_status

+ har_identity
+ roadway_information_incident_updates

other_indicator_control_data_for_roads

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators at the roadside on roads (surface streets) in the geographic area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

indicator_crossing_control_data_for_roads
+ indicator_intersection_control_data
+ indicator_pedestrian_control_data

other_indicator_highway_requested_state

This data flow is used within the Manage Traffic function and contains the actual state of operation of an indicator used to pass instructions to drivers and travelers on the highway network served by other traffic management functions. The form of indication shown to drivers will depend on the type of indicator. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_control_data_for_traffic_metering}

other_indicator_input_data_from_highways

This data flow is used within the Manage Traffic function and contains the actual state of operation of the roadside indicators used to pass instructions to drivers and travelers on freeways within the geographic and/or jurisdictional area(s) served by other traffic management functions. It is used for centralized monitoring the operation of the indicators and consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + indicator_response_state}

other_indicator_input_state_for_roads

This data flow is used within the Manage Traffic function and contains the state of response to control data of indicators on the freeways in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_data
    + indicator_type}

other_indicator_sign_control_data_for_hri

This data flow contains the actual data from which instructions to the driver and traveler can be produced by indicators, dynamic message (DMS), short range communications equipment, and other types of signs on the roads (surface streets) in the vicinity of railroad grade crossings. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{crossing_id
    + hri_sign_control_data}

other_indicator_sign_control_data_for_roads

This data flow contains the actual data from which instructions to the driver and traveler can be produced by indicators at dynamic message (DMS) and other types of signs on the roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + indicator_sign_control_data}

other_isp_emergency_data

This data flow is used to provide emergency data and is sent from another ISP (e.g. a wholesaler of information). The data flow consists of the following items each of which is defined in its own DDE:

wide_area_alert_notification_for_travelers
+ care_facility_status_for_isp
+ evacuation_data_for_isp
+ incident_information
+ shelter_information_to_travelers
+ disaster_transportation_system_status_for_isp
+ evacuation_transportation_system_status_for_isp
+ traffic_incident_data_for_isp

other_isp_traffic_data

This data flow contains a complete (or partial) set of the traffic data which has been created through fusion of available data

sources and sent from another ISP (e.g. a wholesaler of information). This includes current, long term (historical) and predicted link data as well as incident data. The data flow consists of the following items each of which is defined in its own DDE:

source_identity
+ current_data_for_retrieval
+ long_term_data_for_retrieval
+ planned_events
+ predictive_data_for_retrieval

other_isp_transit_data

This data flow is used to provide data on the current state of transit operations (regarding both incidents and transit vehicle schedule status) and is sent from another ISP (e.g. a wholesaler of information). The data flow consists of the following items each of which is defined in its own DDE:

transit_running_data_for_advisory_output
+ transit_incident_data
+ traveler_transit_information_advisory_data

other_long_term_data

This data flow contains historic traffic data for links in the road (surface street) and highway network which are served by other traffic management centers (TMCs). The size estimate is based on data being accumulated at periodic time intervals. The traffic flow, other routes use, o-d matrix, parking lot, processed and wide area pollution data may be stored in time intervals for some period over a rolling window, after which it could be consolidated into a single smoothed or average set of data for normal weekday flows. The traffic management data is stored in periodic intervals daily for a long period of time as a record of the indicator state. This flow consists of the following items each of which is defined in its own DDE:

historical_stored_incident_data
+ historical_other_routes_use
+ o_d_matrix
+ historical_parking_lot_storage_data
+ historical_processed_traffic_data
+ historical_processed_roadway_env_data
+ historical_traffic_flow_state
+ historical_wide_area_pollution_data
+ historical_traffic_management_storage_data

other_modes_routes

This data store is used within the Provide Driver and Traveler Services function and contains details of all non-vehicle and non-transit routes which are currently in use by travelers.

other_parking_lot_dynamic_data

This data flow contains dynamic parking information received from other parking management systems in the region. This includes parking lot occupancy (e.g., number of spaces filled), state (e.g., full, almost full), and status of entrances (open/closed). This data flow is made up of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_identity
  + parking_lot_state
  + parking_lot_occupancy
  + parking_lot_entrances_closed}

other_parking_lot_price_data

This data flow is sent from the Provide Electronic Payment Services function and contains the prices being charged by other parking lots for each of its spaces, together with the time and date for which they apply. It consists of the following data items each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_price
+ parking_lot_charge_application_time
+ vehicle_type_for_charges

other_parking_lot_price_data_request

This data flow is sent to the Provide Electronic Payment Service function from the Manage Traffic function to request the price of parking lot spaces.

other_parking_lot_static_data

This data flow contains static parking information that is received from other parking management systems in the region. This includes lot locations, features (e.g., ability to handle oversized vehicles), capacity, type, hours of operation, and rates. This data flow is made up of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_hours_of_operation
  + parking_lot_identity
  + parking_lot_price

+ parking_lot_spaces
+ parking_lot_entrance_location
+ parking_lot_type
+ parking_lot_features
+ parking_lot_fill_time
+ handicap_access_information}

other_planned_events

This data flow is used within the Manage Traffic function and contains information about incidents which have been planned to take place on links in areas served by adjacent traffic management centers (TMC's). The data flow consists of the following data items each of which is defined in its own DDE:

tmc_identity
+ list_size
+ list_size{planned_events_data}

other_roadway_information_data

This data flow is used within the Manage Traffic function and contains Highway Advisory Radio (HAR) data and Dynamic Message Sign (DMS) data. It consists of the following data items each of which is defined in its own DDE:

other_har_data
+ other_dms_data

other_roadway_information_status

This data flow is used within the Manage Traffic function and contains the status for dynamic message signs (DMS) and highway advisory radio (HAR) on the roadside in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

other_dms_status
+ other_har_status

other_route

This data flow is used within the Provide Driver and Traveler Services function. It is a special form of 'route' which uses modes of transport other than vehicles or transit and contains the following items each of which is defined in its own DDE:

route_cost
+ route_segment_number{route_segment_end_point
+ route_segment_estimated_travel_time
+ route_segment_mode
+ route_segment_report_position_points
+ route_segment_start_point}

other_route_segment_data

This data flow is used within the Provide Driver and Traveler Services function. It contains route segment data obtained from a similar function in another ITS Center covering a separate geographic area. It consists of the following data item which is defined in its own DDE:

route_segment_details

other_routes_map_data

This data flow is used by processes in the Provide Driver and Traveler Services function as a source of digitized data on the physical layout of the road and highway network. This is provided by the map update provider which is a specialist supplier of this type of data that is outside of ITS. The data consists of the following items each of which is defined in its own DDE:

map_digitized_data
+ map_link_identity_data
+ map_gazetteer_data
+ map_transit_data
+ map_hri_data

other_services_data

This data flow is used within the Manage Transit and Provide Driver and Traveler Services functions and contains details of the other (yellow pages) services requested by a traveler (including a user of the transit system).

other_services_payment_confirm

This data flow is used within the Provide Electronic Payment Services and Provide Driver and Traveler Services functions. It is a flag which indicates that payment for a traveler's confirmed use of other (yellow pages) services has been completed successfully, or indicates that the payment transaction failed.

other_services_roadside_request

This data flow is sent from the Manage Transit function to the Provide Electronic Payment Services function and contains the traveler's request from the roadside, i.e., a transit stop, for other (yellow pages) services. In order to fill this request, the receiving process must receive the traveler's identity, and a list of services that he wishes to obtain. The data flow consists of the following data items each of which is defined in its own DDE :

traveler_identity
+ credit_identity
+ other_services_data

other_services_roadside_response
This data flow is sent from the Provide Electronic Payment Services function to the Manage Transit function and contains the response to the traveler's request from the roadside, i.e., a transit stop, for other (yellow pages) services. It consists of the following data items each of which is defined in its own DDE :

traveler_identity
+ credit_identity
+ other_services_data

other_services_vehicle_request
This data flow is sent from the Manage Transit function to the Provide Electronic Payment Services function and contains the traveler's request from a transit vehicle for other (yellow pages) services. In order to fill this request, the receiving process must receive the traveler's identity, and a list of services that he wishes to obtain. The data flow consists of the following data items each of which is defined in its own DDE :

traveler_identity
+ credit_identity
+ other_services_data

other_services_vehicle_response
This data flow is sent from the Provide Electronic Payment Services function to the Manage Transit function and contains the response to the traveler's request from a transit vehicle for other (yellow pages) services. It consists of the following data items each of which is defined in its own DDE :

traveler_identity
+ credit_identity
+ other_services_data

other_status_for_highways
This data flow is used within the Manage Traffic function and contains the status for indicator data operating on freeways in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

other_indicator_input_data_from_highways

other_status_for_roads
This data flow is used within the Manage Traffic function and contains the status for HARs, DMS, and indicator data operating at the roadside on roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

other_indicator_input_state_for_roads

other_TMC_cv_incidents
This data flow is used within the Manage Traffic function and contains data about the route for a commercial vehicle that is carrying an abnormal load where that route originates outside the road and highway network covered by the local TMC. An abnormal load is defined as being one for which some kind of movement permit is needed. It may be that it is either over dimensioned (width, height, weight, etc.) or contains hazardous material (HAZMAT). The data has been received from another TMC (not necessarily that serving the area from which the route originated) and will enable the local TMC to set up any special traffic control strategies to minimize the disruption to traffic as the load passes through the network. The data flow consists of the following data items each of which is defined in its own DDE:

permit_coordination

other_TMC_emergency_data
This data flow is used within the Manage Traffic function and contains the portion of a strategy that gives preemption to emergency vehicles that relates to roads (surface streets) and highways that are outside the area served by the local TMC. This data has been received from other TMC's so the local TMC can implement the requested preemption measures to give the emergency vehicles preemption throughout their route. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_traffic_control_request
+ selected_emergency_vehicle_strategy

other_TMC_strategy_data
This data flow is used within the Manage Traffic function and contains the strategy data that has been obtained from another TMC. This data can be use by the local TMC for determining its own traffic management strategy taking account of what is happening in the road and highway network controlled by another TMC. The data flow consists of the following items each of which is defined in its own DDE:

strategy_data

other_toll_admin_data
This data store contains toll pricing data and charge reconciliation data received from the Other Toll Administration terminator. It consists of the following items each of which is defined in its own DDE:

fota-toll_pricing_data
+ fota-toll_charges_reconciliation_data

other_toll_data_input
This data flow contains toll pricing data and charge reconciliation data received from another toll administration function. It consists of the following items each of which is defined in its own DDE:

other_toll_pricing_data
+ toll_reconciliation_inputs

other_toll_data_output
This data flow contains toll pricing data and charge reconciliation data to be passed onto another toll administration function. It consists of the following items each of which is defined in its own DDE:

toll_prices_for_other_toll
+ toll_reconciliation_outputs

other_toll_pricing_data
This data includes toll prices received from another toll administration function.

other_traffic_center_data
This data flow is used within the Manage Traffic function and contains data that has been obtained from other Traffic Management Centers (TMC's) that serve different geographic or jurisdictional areas outside that served by the local TMC. The data flow consists of the following items of data each of which is defined in its own DDE:

tmc_list
+ 1{other_long_term_data}list_size

other_transit_management_service_data
This data flow is used within the Manage Transit function and contains the raw transit schedule and route data received from an adjacent transit operation. The data will be used in future service calculations by the local operation to enable there to be coordination between the two services for the benefit of the traveler.

override_lane_hold
This data flow is used within the Provide Vehicle Control and Monitoring function and indicates that lane holding must be suspended while the vehicle changes lanes. This lane change is due to the driver requesting that the vehicle change lanes.

override_throttle
This data flow is used within the Provide Vehicle Control and Monitoring function and indicates that the current throttle setting must be changed because the driver has requested that the vehicle changes speed.

owner_entities
This data flow identifies the source or owning agency of the data which may be used as a point of contact when trying to make use of the data.

P

paratransit_arrival_time
This data flow is used within the Manage Transit function and contains the time at which the requested paratransit service will get the traveler to the requested destination. The location of the destination is provided in a separate data flow. The data flow consists of the following data item which is defined in its own DDE:

time

paratransit_availability_time
This data flow is used within the Manage Transit function and contains a time window of availability of the requested paratransit service. If the traveler does not confirm the use of the service within this time frame, the details will no longer be valid, and the traveler will have to re-request the service. This is to allow for the fluctuating nature of demand for paratransit services and to enable the best possible service to be provided at any time.

paratransit_available_vehicles
This data flow is used within the Manage Transit function and contains information on vehicles that are available for paratransit services.

transit_vehicle_type
+ transit_vehicle_identity

+ transit_vehicle_passenger_capacity
+ transit_vehicle_location_data

paratransit_constraints

This data flow is part of the data that enables a route. It contains the constraints being placed on the choice of route and which will override any preferences that are also specified. Unless a default value is specifically defined, a value giving the least severe requirement will be used. Some parameters will have to be supplied by the traveler or transit vehicle operator (or provided by a process as a default value) before the route selection process can proceed. The data flow consists of the following items each of which is defined in its own DDE:

constraint_on_acceptable_travel_time
+ constraint_on_number_of_mode_changes
+ constraint_on_number_of_transfers
+ constraint_on_eta_change
+ constraint_on_special_needs
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type

paratransit_destination

This data flow is used within the Manage Transit function and contains destination of the requested paratransit service, which may not be the traveler's final destination, since the remainder of the trip may be completed by other means, e.g. regular public transit.

paratransit_personal_schedule

This data flow is sent from the Manage Transit function to the Provide Driver and Traveler Services function. It consists of the following data items each of which is defined in its own DDE:

paratransit_service_details
+ paratransit_service_cost
+ traveler_identity

paratransit_pickup_location

This data flow is used within the Manage Transit function and contains the location at which the requested paratransit service will pick up the traveler. The time at which the traveler will be picked up is contained in a separate data flow. The data flow consists of the following data item which is defined in its own DDE:

location_identity

paratransit_pickup_time

This data flow is used within the Manage Transit function and contains the time at which the requested paratransit service will pick up the traveler. The location of the pick-up point is provided in a separate data flow.

paratransit_request

This data flow is used within the Provide Driver and Traveler Services function as a means of specifying the parameters needed for a paratransit based trip (or paratransit portion of a multi-modal trip) to be generated. It contains the following data items each of which is defined in its own DDE:

origin
+ destination
+ departure_time
+ desired_arrival_time

paratransit_requested_services

This data flow is used within the Manage transit function and contains details of the traveler's request for paratransit services. It consists of the following data items each of which is defined in its own DDE:

paratransit_personal_schedule
+ traveler_identity

paratransit_route_confirm

This data flow is used within the Provide Driver and Traveler Services function and is the confirmation that the response to a previous request from a travelers seeking on-line guidance to be given access to paratransit services is acceptable to the traveler.

paratransit_service_details
+ traveler_identity

paratransit_route_request

This data flow is used within the Provide Driver and Traveler Services function to enable travelers using on-line guidance to be given access to paratransit services. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ trip_request

paratransit_route_response

This data flow is used within the Provide Driver and Traveler Services function and is the response to the request from a traveler using on-line guidance to be given access to paratransit services. It consists of the following data items each of which is defined in its own DDE:

paratransit_service_details
+ traveler_identity

paratransit_schedule

This data flow is used within the Manage Transit function and contains details of a paratransit service that has been generated in response to a previously submitted traveler request. It consists of the following data items each of which is defined in its own DDE:

paratransit_service_details
+ transit_stop_locations
+ transit_schedules
+ transit_route

paratransit_service_confirmation

This data flow is sent by the Provide Driver and Traveler Services function to the Manage Transit function to confirm that the traveler wants to use the previously identified paratransit service. It contains the following data items each of which is defined in its own DDE:

paratransit_service_identity
+ transit_confirmation_flag
+ traveler_identity

paratransit_service_cost

This data flow is used within the Manage Transit function and contains the cost of the requested paratransit service. It consists of the following data item which is defined in its own DDE:

cost

paratransit_service_data

This data store is used within the Manage Transit function to hold data about paratransit services that have been requested but not confirmed by travelers. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ paratransit_personal_schedule

paratransit_service_data_for_archive

This data flow is used within the Manage Transit function to send data about paratransit services that have been requested but not confirmed by travelers. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ paratransit_personal_schedule

paratransit_service_details

This data flow is used within the Manage Transit function to provide details of the response to a requested paratransit service. It consists of the following data items each of which is defined in its own DDE:

paratransit_arrival_time
+ paratransit_availability_time
+ paratransit_destination
+ paratransit_pickup_time
+ paratransit_pickup_location
+ paratransit_service_identity

paratransit_service_identity

This data flow provides a unique identity number for a requested paratransit service.

paratransit_service_output

This data flow is used within the Manage Transit function to hold data about paratransit services for output to the store used as the interface to the regular transit route and schedule generation processes. It contains the following data item which is defined in its own DDE:

paratransit_service_details

paratransit_service_status

This data flow is sent from the transit vehicle operator to the Manage Transit function. It contains status of demand responsive or flexible-route services as and when they are provided to travelers. This data also includes input from the transit vehicle operator concerning paratransit schedules and passenger loading.

paratransit_service_stored_data

This data flow is used within the Manage Transit function. It contains details of the one hundred most used demand responsive transit (paratransit) services and is for use by the processes that generate regular transit service routes and schedules. The data

flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{paratransit_service_details}

paratransit_services
This flow is used within the Manage Transit function to provide data about paratransit services as they are different from normal transit services. It contains the following data items each of which is defined in its own DDE:

paratransit_service_details
+ transit_vehicle_identity
+ transit_stop_locations
+ transit_schedules
+ transit_route
+ traveler_identity

paratransit_services_for_transit_vehicle_operators
This data flow is used within the Manage Transit function to provide data about a confirmed paratransit service to a transit vehicle operator. It contains the following data items each of which is defined in its own DDE:

transit_schedules
+ transit_route
+ transit_stop_locations

paratransit_transit_vehicle_availability
This data flow is used within the Manage Transit function and contains the current availability of a transit vehicle for paratransit services. This availability has been computed from processing the inputs from on-board sensors within the transit vehicle.

paratransit_transit_vehicle_operator_instructions
This data flow is used within the Manage Transit function and contains the instructions for the transit vehicle operator to follow in order that a paratransit service can be executed. The instructions will contain such things as pick-up points, traveler identities, drop off points, etc. The operator can obtain actual route guidance through the on-line vehicle guidance facility available from the Provide Driver and Traveler Services function.

paratransit_trip_request
This data flow is sent from the Provide Driver and Traveler Services function to the Manage Transit function to action a trip request using the paratransit operation. It contains the following data items each of which is defined in its own DDE:

traveler_identity
+ origin
+ destination
+ departure_time
+ desired_arrival_time
+ preferences
+ paratransit_constraints

paratransit_vehicle_location
This data flow is used within the Manage Transit function to provide the exact location of a vehicle being used for demand responsive transit operations also known as paratransit. It contains the transit vehicle location plus its identity. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location

parking_alert
This data flow contains traveler alerts that report regionally relevant parking availability and may include lot closures, lot full/nearly full status, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions including the traveler's location, search radius, or timeframe, as well as configurable alert thresholds (e.g., lot is full or nearly full).

parking_archive_catalog
This data flow is used to provide the description of the data contained in the collection of parking data that has been stored and made available for the Manage Archive Function. The catalog may include description of the schema or structure of the data, a description of the contents of the data; e.g. time range of entries, number of entries; or sample data products.

parking_archive_catalog_request
This data flow from the Manage Archive Data function contains the request for a catalog of the data held by the Manage Traffic function. The request for a catalog may include the description of types of data the archive is interested in or a timeframe over which the requested information may be available.

parking_archive_data
This data flow is sent from the Manage Traffic function to the Manage Archive Data function. It contains details of parking data such as parking availability, occupancy, and pricing. This data flow made up of the following items each of which is defined in its own DDE:

parking_archive_catalog
+ parking_data_for_archive

parking_archive_data_request

This data flow from the Manage Archive Data function contains the request for the data held by the Manage Traffic function. The request for data may include the description of the data required or a timeframe over which the requested information may be available.

parking_archive_request

This data flow from the Manage Archive Data function contains the request for data collected and stored by the Manage Traffic Function. The request can be a request for a catalog of the data held by the function or a request for the data itself. This data flow consists of the following data items each of which is defined in its own DDE:

parking_archive_catalog_request
+ parking_archive_data_request

parking_archive_status

This data flow is sent from the Manage Archived Data function to the Manage Traffic function. It is the status returned when parking archive data is sent from the Manage Traffic function to the Manage Archived Data function.

parking_charge_attributes

This data flow is used to provide meta data included with parking charge data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

parking_charge_request_for_archive

This data flow is sent from the Manage Traffic function to the Provide Electronic Payment Services function and contains a request for a data about parking lot charges and the number of spaces available in a particular parking lot. It consists of the following data items each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_price
+ parking_lot_charge_application_time
+ vehicle_type_for_charges

parking_charge_response_for_archive

This data flow is sent from the Provide Electronic Payment Services function to the Manage Traffic function. It contains the response to a previous request for the current parking lot charges to be stored in the data archive. It will store data about the prices charged for parking lot spaces, by time of day, day of week and vehicle type. This data flow is made up of the following items each of which is defined in its own DDE:

list_size
+ parking_lot_identity
+ 1{parking_lot_price
  + parking_lot_charge_application_time
  + vehicle_type_for_charges}list_size
  + parking_lot_availability

parking_data_archive

This data store is used within the Manage Traffic function to hold data that is to be archived by the Manage Archived Data function. This data includes information, such as, parking lot charges and availability data. The data store contains the following data items each of which is defined in its own DDE:

parking_archive_catalog
+ parking_charge_response_for_archive
+ parking_charge_attributes
+ parking_lot_state_for_archive
+ parking_lot_state_attributes
+ parking_lot_static_data_for_archive
+ parking_lot_static_data_attributes

parking_data_for_alerts

This data flow contains traveler alerts that report regionally relevant parking availability and may include lot closures, lot full/nearly full status, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions.

parking_data_for_archive

This data flow is sent from the Manage Traffic to the Manage Archive Data function. It is used to provide detailed information on parking data, such as parking availability and parking lot charges. This data flow consists of the following items each of which is defined in its own DDE:

parking_charge_response_for_archive
+ parking_charge_attributes
+ parking_lot_state_for_archive
+ parking_lot_state_attributes
+ parking_lot_static_data_for_archive
+ parking_lot_static_data_attributes

parking_data_for_broadcast

This data flow contains information concerning parking facilities needed to support the broadcast traveler information application. This includes information like size, location, features, restrictions, hours, availability, etc. The data flow consists of the following items each of which is defined in its own DDE:

dynamic_parking_information_for_isp
+ static_parking_information_for_isp

parking_data_for_centers

This data flow contains information concerning parking facilities for transmission to other operational centers. This includes information like size, location, hours, etc. The data flow consists of the following items each of which is defined in its own DDE:

dynamic_parking_information_for_isp
+ static_parking_information_for_isp

parking_data_for_interactive

This data flow contains information concerning parking facilities, processed for traveler consumption, needed to support the interactive traveler information application. This includes information in response to a specific request as well as more general information concerning size, location, hours, etc. The data flow consists of the following items each of which is defined in its own DDE:

dynamic_parking_information_for_isp
+ static_parking_information_for_isp

parking_data_for_trip_planning

This data flow contains information concerning parking facilities needed to support the trip planning application. This includes availability information in response to a specific request as well as more general information like size, location, hours, etc. The data flow consists of the following items each of which is defined in its own DDE:

dynamic_parking_information_for_isp
+ parking_lot_availability
+ static_parking_information_for_isp

parking_data_request

This data flow contains a request for parking data in support of other applications. It is made up of the following items each of which is defined in its own DDE:

date
+ time
+ parking_lot_identity

parking_data_request_for_alerts

This data flow is used to request specific parking availability information based on traveler alert subscriptions.

parking_data_request_from_interactive

This data flow contains a request for parking data in support of the interactive traveler information application. It is made up of the following item which is defined in its own DDE:

parking_data_request

parking_data_request_from_trip_planning

This data flow contains a request for parking data in support of the trip planning application. This is to be used when parking will be part of a traveler's trip and parking lot location, size, availability, and other information is needed. The identity of the traveler is needed to support individual parking requests. This data flow is made up of the following items each of which is defined in its own DDE:

parking_data_request
+ traveler_identity

parking_facility_information

This data flow contains details concerning the parking facility at a transit stop (e.g., escalator/elevator operational, entrance open/closed) for output to a traveler at a kiosk.

parking_information_device_control

This data flow consists of inputs from the parking operator to control the transmission/display of information to the drivers as the enter, exit, and proceed through a parking facility. This may include static information like hours of operation, or dynamic information such as the location of available spaces.

parking_information_device_status

This data flow provides the operational status (state of the device, configuration, and fault data) of the driver information devices for the Manage Parking Lot function. This data flow consists the following items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

parking_information_for_dissemination

This data flow contains dynamic parking information that would be used to generate DMS and HAR messages. This includes parking lot occupancy (e.g. number of spaces filled), state (e.g. full, almost full), entrances open/closed, and detailed arrival and departure information. This data flow is made up of the following data items, each of which is defined in its own DDE:

parking_lot_state
+ parking_lot_identity
+ parking_lot_arrival_details
+ parking_lot_departure_details
+ parking_lot_occupancy
+ parking_lot_entrances_closed

parking_lot_arrival_details

This data flow contains the number of vehicles arriving at a parking lot over some recent time interval.

parking_lot_availability

This data flow contains details of the number of spaces available in the lot in response to a previous request for this data. This data is used in transactions requiring electronic payment of parking lot services, as well as for a traveler making a parking lot reservation. The data flow consists of the following items each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_spaces
+ traveler_identity

parking_lot_bookings_confirm

This data flow is used within the Provide Electronic Payment Services function and contains result of a previous request for the advanced booking of space(s) in a parking lot. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ reservation_status

parking_lot_bookings_request

This data flow is used within the Provide Electronic Payment Services function and contains details of the advanced booking being requested for space(s) in a parking lot. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ parking_lot_identity
+ parking_space_details

parking_lot_calculated_occupancy

This data flow contains the current occupancy of a parking lot, i.e. the number of vehicles present, calculated from traffic sensors located at its entrance(s) and exit(s).

parking_lot_capacity_update

This data flow is used within the Provide Electronic Payments function and contains an update to the current capacity of a parking lot managed by a particular Parking Service Provider. It consists of the following data items each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_spaces

parking_lot_capacity_update_confirm

This data flow is used within the Provide Electronic Payments function and contains the result of an update to the current capacity of a parking lot managed by a particular Parking Service Provider. It consists of the data items shown below each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_spaces

parking_lot_charge

This data flow is used within the Provide Electronic Payment Services function and contains a vehicle identity, credit identity, stored credit and the charge for the use of a space in a parking lot. The first three data items are used to enable the cost to be directed at the owner of the vehicle or the vehicle driver. The data flow consists of the following data items each of which is defined in its own DDE:

parking_lot_vehicle_payment_data
+ parking_lot_cost
+ vehicle_identity

parking_lot_charge_application_time

This data flow is used within the Provide Electronic Payment Services function and contains the time at which a parking lot charge applies for a particular toll segment.

parking_lot_charge_change_request

This data flow is sent from the Manage Traffic function to the Provide Electronic Payment Services function and contains a request for a change to the current parking lot charging structure that will help to influence a change in modal split of journeys currently being undertaken by travelers of all types, i.e. including drivers and users of the transit system, by encouraging then to use certain parking lots, e.g. those near park and ride sites on the edge of an urban area. It consists of the following data items each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_price
+ parking_lot_charge_application_time
+ vehicle_type_for_charges

parking_lot_charge_change_response

This data flow is sent from the Provide Electronic Payment Services function to the Manage Traffic function. It contains the response to a previous request for the current parking lot charges to be changed to help produce a change in the current modal split of trips being undertaken by all types of travelers.

parking_lot_charge_details

This data flow is sent from the Provide Electronic Payment Services function and contains the prices being charged by each parking lot for each of its spaces, together with the time and date for which they apply. It consists of the following data items each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_price
+ parking_lot_charge_application_time
+ vehicle_type_for_charges

parking_lot_charge_direct_details

This data flow is contains the prices being charged by each parking lot for each of its spaces, together with the time and date for which they apply. It consists of the following data items each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_price
+ parking_lot_charge_application_time
+ vehicle_type_for_charges

parking_lot_charge_direct_request

This data flow is sent from the Manage Traffic function to the Provide Electronic Payment Services function and contains a request for the current prices being charged for parking lot spaces.

parking_lot_cost

This data flow is used within the Provide Electronic Payment Services function. It defines the cost of particular vehicle using a space in a parking lot for a particular time period. The data flow consists of the following data item which is defined in its own DDE:

cost

parking_lot_current_occupancy
This data flow is used within the Manage Traffic function and contains the parking lot identity and current occupancy. It consists of the following data items each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_calculated_occupancy

parking_lot_current_state
This data flow is used within the Manage Traffic function and contains the identity of the parking lot plus its current status, occupancy, open/closed entrance status, and parking lot sensor status. It consists of the following data items each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_state
+ parking_lot_current_occupancy
+ parking_lot_sensor_status
+ parking_lot_entrances_closed

parking_lot_data
This data store is used within the Provide Electronic Payment Services function and contains data covering the capacity of the parking lot, i.e. the total number of spaces for vehicles, and any advanced bookings that have been made. It consists of the following data items each of which is defined in its own DDE:

parking_lot_bookings_request
+ parking_lot_spaces
+ parking_lot_identity

parking_lot_data_request
This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains a request for data about the number of spaces that are available in a particular parking lot at the specified date and time. This data is requested as part of the process of putting together a proposed trip in response to a traveler's trip request. This data flow contains the following items each of which is defined in its own DDE:

date
+ parking_lot_identity
+ time
+ traveler_identity

parking_lot_decreasing_threshold
This data flow is used within the Manage Traffic function and contains the threshold at which the parking lot state will change, e.g. from 'spaces' to 'almost full', etc., as the number of vehicles in the parking lot decreases.

parking_lot_departure_details
This data flow contains the number of vehicles departing a parking lot over some recent time interval.

parking_lot_dms_allocation
This data flow is used within the Manage Traffic function and contains the identity(ies) of dynamic message signs that are allocated to parking lots to show the state of the parking lot, and (possibly) give alternate parking information. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{unit_number}

parking_lot_dms_controls
This data flow is used within the Manage Traffic function and contains data about the text strings of information about parking lot states that are to be output to drivers using a form of indicators called dynamic message signs (DMS). The output data may be a direction indication towards a parking lot where spaces exist, a state indication (open/closed), or a number of spaces currently available depending on the type of indicator and the selected strategy.

parking_lot_dynamic_data_operator_input
This data flow is used within the Manage Transit function to provide data from the parking lot operator. This data may take the form of the current parking lot occupancy or its state, e.g. full, spaces, closed, etc.

parking_lot_dynamic_data_operator_update
This data flow contains dynamic parking information for both locally managed lots and other lots in the region that are sharing dynamic parking information. This information will be displayed to parking lot operators as they manage the facilities. This includes parking lot occupancy (e.g., number of spaces filled), state (e.g., full, almost full), entrances open/closed, detailed arrival information, and detailed departure information. This data flow is made up of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_identity
+ parking_lot_state
+ parking_lot_occupancy
+ parking_lot_arrival_details
+ parking_lot_departure_details
+ parking_lot_entrances_closed}

parking_lot_dynamic_information_request_by_isp
This data flow contains a request from a traveler information service for dynamic parking lot information for some set of parking lots. This data flow is made up of the following data items, each of which are defined in its own DDE:

list_size{parking_lot_identity}

parking_lot_dynamic_information_request_by_traffic
This data flow contains a request from traffic management for dynamic parking lot information for some set of parking lots. This data flow is made up of the following data items, each of which are defined in its own DDE:

list_size
+ list_size{parking_lot_identity}

parking_lot_dynamic_information_request_by_transit
This data flow contains a request from transit management for dynamic parking lot information for some set of parking lots. This data flow is made up of the following data items, each of which are defined in its own DDE:

list_size
+ list_size{parking_lot_identity}

parking_lot_entrance_location
This data flow contains the location of each entrance of a single parking lot. The location might be stored as the route segment identity on which the entrance is located, it might be stored as a street address or it might be stored as a precise geographical location. This data flow contains the following data item which is defined in its own DDE:

location_identity

parking_lot_entrances_closed
This data flow contains the current state of entrances to a parking lot (open, closed).

parking_lot_entry_lane_number
This data flow is used within the Provide Electronic Payment Services function and contains the number of the lane through which the vehicle entered the parking lot.

parking_lot_features
This data flow contains data on the features of a parking lot, which includes height and width restrictions, number of handicap spaces, number of oversized spaces, etc.

parking_lot_fill_time
This data flow contains the time at which a parking facility usually (on weekdays) reaches a point where spaces available equals 0.

parking_lot_hours_of_operation
This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function and contains data on the hours of operation of parking lots. This data is used in transactions requiring electronic payment of parking lot services, as well as for a traveler making a parking lot reservation.

parking_lot_identity
This data flow is used within the Provide Electronic Payment Services and Manage Traffic function. It contains the identity of an individual parking lot, including contact information, so that its charges can be defined and a control strategy applied to its use. The data flow consists of the following data items each of which is defined in its own DDE:

unit_number
+ location_identity

parking_lot_increasing_threshold
This data flow is used within the Manage Traffic function and contains the threshold at which the parking lot state will change, e.g. from 'spaces' to 'almost full', etc., as the number of vehicles in the parking lot increases.

parking_lot_input_data
This data flow is used within the Manage Traffic function and contains data that is used to calculate the occupancy of parking lots. It consists of the following items each of which is defined in its own DDE:

parking_lot_list
+ 1{vehicle_count
+ vehicle_queue_length}list_size

parking_lot_list

This data flow is used within the Manage Traffic function and contains a list of parking lots to which a particular strategy is to be applied. The strategy will either promote or discourage the use of the parking lots to generally improve traffic flow conditions in the geographic area controlled by the TMC. The data flow consists of the following data items each of which is defined by its own DDE:

1{parking_lot_identity}list_size

parking_lot_occupancy

This data flow is used within the Manage Traffic function and contains the current occupancy of a parking lot, i.e. the number of vehicles present.

parking_lot_payment_confirmation

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that the previous request for the cost of the current parking lot charge to be deducted from the credit currently stored by the traveler card / payment instrument has been completed successfully. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag

parking_lot_payment_debited

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that the cost of the current parking lot charge will be deducted by the financial institution from the credit identity previously provided by the traveler card / payment instrument. It is only sent when a credit identity has been previously received from the traveler card / payment instrument. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag

parking_lot_payment_pull_in_message

This data flow is used within the Provide Electronic Payment Services function to indicate that a driver must pull in because the parking lot payment transaction has failed. It contains the following data item which is defined in its own DDE:

vehicle_identity

parking_lot_payment_request

This data flow is used within the Provide Electronic Payment Services function and contains the request for the cost of the current parking lot charge to be deducted from the credit currently stored by the traveler card / payment instrument. It is only sent when a value of stored credit has been previously received from the traveler card / payment instrument. The data flow consists of the following data item which is defined in its own DDE:

parking_lot_cost

parking_lot_price

This store is used within the Provide Electronic Payment Service function to hold data about the prices to be charged for parking lot spaces.

parking_lot_price_data

This data flow is used within the Provide Electronic Payment Services function and contains the prices being charged by each parking lot for each of its spaces, together with the time and date for which they apply. It consists of the following data items each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_price
+ parking_lot_charge_application_time
+ vehicle_type_for_charges

parking_lot_price_data_request

This data flow is used within the Provide Electronic Payment Services function. It contains a request for the current parking lot price data to be provided from the store that is being used to calculate parking lot charges.

parking_lot_price_details

This data flow is used within the Provide Electronic Payment Services function and contains details of the prices charged by each parking lot for use of its spaces. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_price_data}

parking_lot_prices

This flow is used within the Provide Electronic Payment Service function to hold data about the prices to be charged for parking lot spaces, by time of day, day of week and vehicle type. It consists of the following data items each of which is defined in its own DDE:

list_size
+ parking_lot_identity

+ 1{parking_lot_price
  + parking_lot_charge_application_time
  + vehicle_type_for_charges}list_size

parking_lot_reservation_confirm

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function. It contains the confirmation that a previously requested reservation of a space at a parking lot has been confirmed and can be included in a traveler's confirmed trip plan. This data flow consists of the following items each of which is defined in its own DDE:

parking_lot_identity
+ reservation_status
+ traveler_identity

parking_lot_reservation_request

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains a request for an advance reservation to be made at a parking lot. This reservation is the result of a traveler confirming a proposed trip. This data flow contains the following items each of which is defined in its own DDE:

date
+ parking_lot_identity
+ time
+ traveler_identity

parking_lot_sensor_allocation

This data flow is used within the Manage Traffic function and contains the identity(ies) of the traffic sensors that are used to determine the number of spaces in the parking lot that are currently occupied. There are two types of sensor, those measuring input flow (vehicles entering the lot) and those measuring output flow (vehicles leaving the lot). The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{unit_number + parking_lot_sensor_type}

parking_lot_sensor_status

This data flow is used to collect operational status (state of the device, configuration, and fault data) of parking lot sensors. It consists of the following data items each of which is defined in its own DDE:

sensor_device_status
+ sensor_identity
+ station_id

parking_lot_sensor_type

This data flow is used within the Manage Traffic function and contains a character that indicates the type of parking lot lane to which a traffic sensor has been applied to count the number of vehicles that pass. The following two types are provided: N - for sensors on entry lanes, X - for sensors on exit lanes.

parking_lot_spaces

This data flow is used within the Provide Driver and Traveler Services function and contains the number of spaces available in a parking lot. This may be either currently or at some point in the future depending on accompanying data.

parking_lot_state

This data flow contains the current state of a parking lot. It will have been determined from data provided by either the parking lot operator, the parking service provider, or a comparison of the actual occupancy of the parking lot determined from vehicle detectors sited at the lot entrance(s) and exit(s) with threshold values for each status condition. The state is stored as a character code. Some of the messages the data could describe about parking lots might include spaces, almost full, full, or closed.

parking_lot_state_attributes

This data flow is used to provide meta data included with parking data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created

+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

parking_lot_state_for_archive

This data flow is used within the Manage Traffic function and contains the identity of the parking lot plus its current status, occupancy, and open/closed status of entrances. The data flow contains parking availability information to be sent to the data archive process. It consists of the following data items each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_state
+ parking_lot_current_occupancy
+ parking_lot_entrances_closed

parking_lot_state_thresholds

This data flow is used within the Manage Traffic function and contains the thresholds at which the parking lot states will change, e.g. from 'spaces' to 'almost full', etc. There are two sets of thresholds, one set for use when the parking lot occupancy is increasing and the other set for use when the occupancy is decreasing. The data flow consists of the following data items each of which is defined in its own DDE:

parking_lot_increasing_threshold
+ parking_lot_decreasing_threshold

parking_lot_static_data

This data flow is used within the Manage Traffic function and contains information about the allocation of vehicle counting sensors, and signs to parking lots, plus details of the thresholds used to decide the parking lot state, i.e. the occupancies at which the 'almost full' and 'full' states will apply. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_identity
    + parking_lot_sensor_allocation
    + parking_lot_state_thresholds
    + parking_lot_dms_allocation}

parking_lot_static_data_attributes

This data flow is used to provide meta data included with parking data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute

+ standard_message_attribute

parking_lot_static_data_for_archive

This data flow contains static parking information to be archived. This includes lot location, features (e.g. ability to handle oversized vehicles), capacity, type, hours of operation and rates. This data flow is made up of the following data items, each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_hours_of_operation
+ parking_lot_identity
+ parking_lot_entrance_location
+ parking_lot_type
+ parking_lot_features
+ handicap_access_information}

parking_lot_static_data_for_coordination

This data flow contains static parking information that is shared with other parking management systems in the region. This includes lot locations, features (e.g., ability to handle oversized vehicles), capacity, type, hours of operation, and rates. This data flow is made up of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_hours_of_operation
+ parking_lot_identity
+ parking_lot_price
+ parking_lot_spaces
+ parking_lot_entrance_location
+ parking_lot_type
+ parking_lot_features
+ parking_lot_fill_time
+ handicap_access_information}

parking_lot_static_data_operator_input

This data flow is used within the Manage Transit function to provide data from the parking lot operator. This data may take the form of the current parking lot occupancy or its state, e.g. full, spaces, closed, etc.

parking_lot_static_data_operator_update

This data flow contains static parking information that is to be displayed to a parking lot operator. This includes lot locations, features (e.g., ability to handle oversized vehicles), capacity, type, hours of operation, and rates. This data flow is made up of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_hours_of_operation
+ parking_lot_identity
+ parking_lot_price
+ parking_lot_spaces
+ parking_lot_entrance_location
+ parking_lot_type
+ parking_lot_features
+ parking_lot_fill_time
+ handicap_access_information}

parking_lot_static_information_request_by_isp

This data flow contains a request from a traveler information service for static parking lot information for some set of parking lots. This data flow is made up of the following data items, each of which are defined in its own DDE:

list_size{parking_lot_identity}

parking_lot_static_information_request_by_traffic

This data flow contains a request from traffic management for static parking lot information for some set of parking lots. This data flow is made up of the following data items, each of which are defined in its own DDE:

list_size
+ list_size{parking_lot_identity}

parking_lot_static_information_request_by_transit

This data flow contains a request from transit management for static parking lot information for some set of parking lots. This data flow is made up of the following data items, each of which are defined in its own DDE:

list_size
+ list_size{parking_lot_identity}

parking_lot_storage_data

This data flow is used within the Manage Traffic function and contains occupancy and state data for all the parking lots in the geographic area served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_current_occupancy
    + parking_lot_identity
    + parking_lot_state}

parking_lot_transaction_records
This data store is used by processes in the Provide Electronic Payment Services function and contains records of parking lot payment transactions. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{advanced_charge_transactions
    + current_charge_transactions}

parking_lot_type
This data flow contains an indication of the physical characteristics of a parking facility, indicating whether the lot is an open lot or closed garage. The data flow also contains the type of parking provided (e.g. permit, contract, fee or paid).

parking_lot_vehicle_detection_data
This data flow contains data obtained from a vehicle at a parking lot sensor (entries and exits, transition points between parking areas; e.g., ramps between garage levels, or in individual parking spaces) and may indicate that a vehicle was detected, the count/number of vehicles detected, or even classification on the detected vehicle.

parking_lot_vehicle_payment_data
This data flow is used within the Provide Electronic Payment Services function and contains the data that has been provided by the traveler card / payment instrument being used by the driver at a parking lot. This may be either a credit identity, or the value of the credit currently stored by the traveler card / payment instrument, to which parking lot charges may be charged. The data flow consists of the following items each of which is defined in its own DDE:

credit_identity
+ date
+ parking_lot_entry_lane_number
+ stored_credit
+ time

parking_lot_vehicle_payment_data_clear
This data flow is used within the Provide Electronic Payment Services function and contains the parking lot vehicle payment data from which any arrival time has been cleared. The data will have been used to charge for use of the parking lot, and is being cleared to enable its use for future charging. The data flow consists of the following data item which is defined in its own DDE:

parking_lot_vehicle_payment_data

parking_lot_vehicle_payment_data_collect
This data flow is used within the Provide Electronic Payment Services function and contains the parking lot vehicle payment data that is being collected from on-board the vehicle. This data will be used as the means by which the vehicle will be charged for its use of the parking lot and will consist of the following data item which is defined in its own DDE:

parking_lot_vehicle_payment_data

parking_lot_vehicle_payment_data_request
This data flow is used within the Provide Electronic Payment Services function and contains a request for the parking lot tag data to be read from the store that is held on-board the vehicle.

parking_lot_vehicle_payment_data_store
This data store is used within the Provide Electronic Payment Services function and contains the parking lot vehicle payment data that is being currently used by the vehicle. The time portion of this data may show the time at which the vehicle entered the parking lot and will be used as the basis for calculating the parking lot use charge. The data flow consists of the following data item which is defined in its own DDE:

parking_lot_vehicle_payment_data

parking_lot_vehicle_payment_data_update
This data flow is used within the Provide Electronic Payment Services function and contains the parking lot vehicle payment data that has been updated. This update will have loaded the time at which the vehicle entered the parking lot and is for use in charging for the vehicle's use of the lot. The data flow consists of the following data item which is defined in its own DDE:

parking_lot_vehicle_payment_data

parking_lot_vehicle_payment_pull_in_message
This data flow is used within the Provide Electronic Payment Services function to indicate that a driver must pull in because the vehicle's payment device cannot be read at a parking lot.

parking_lot_violation_information
This data is used by the Provide Electronic Payment Services functions to send data about a violator of the parking lot charge

collection processes to the Manage Emergency Services function. This data will contain a digitized video image of the vehicle trying to violate the parking lot charge collection process.

parking_request

This data flow contains a request for data about availability of a particular parking lot as part of the process of putting together a requested trip. It consists of the following items each of which is defined in its own DDE:

origin
+ destination
+ departure_time
+ desired_arrival_time

parking_sensor_status

This data flow contains sensor status that is obtained from detectors at a parking facility. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

parking_space_details

This data flow is used within the Provide Electronic Payment Services function and contains details of the parking lot space requirements for a particular user. It consists of the following data items each of which is defined in its own DDE:

date
+ duration
+ time

parking_to_vehicle_local_parking_data

This data flow contains information concerning nearby parking facilities needed to be transmitted using direct wireless communications with equipped vehicles. This includes both static information like size, location, hours, and restrictions and dynamic data such as spaces available. The data flow consists of the following items each of which is defined in its own DDE:

dynamic_parking_data_for_drivers
+ static_parking_data_for_drivers

parking_vehicle_payment_number

This data flow contains the unique vehicle payment device identification number for parking.

pavement_type

This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains information about the type of material from which the pavement is constructed (e.g. concrete, asphalt).

payment_request

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains requests for payments to be made by travelers or requests for price information. It consists of the following data items each of which is defined in its own DDE:

driver_advanced_payment_for_map
+ driver_map_update_payment_request
+ driver_display_update_payment_request
+ parking_lot_data_request
+ parking_lot_reservation_request
+ price_data_request_from_trip_planning
+ rideshare_payment_request
+ traveler_map_update_payment_request
+ traveler_other_services_payment_request
+ traveler_payment_request
+ traveler_personal_data_update
+ traveler_personal_display_update_payment_request
+ traveler_personal_map_update_cost
+ traveler_roadside_data_update
+ travel_services_provider_registration_request
+ price_data_request_from_interactive
+ traveler_vmt_payment_info_from_trav
+ traveler_vmt_account_setup_info_from_trav
+ traveler_personal_vmt_payment_info_from_trav
+ traveler_personal_vmt_account_setup_info_from_trav

payment_result

This data flow is sent by the Provide Electronic Payment Services function to the Provide Driver and Traveler Service function and contains responses to requests for payment by travelers, prices, probe data from vehicles paying tolls, or responses from parking lots. The data flow consists of the following data items each of which is defined in its own DDE:

driver_credit_identity
+ driver_map_update_payment_response
+ driver_display_update_payment_response
+ parking_lot_availability
+ parking_lot_reservation_confirm
+ price_data_for_trip_planning
+ rideshare_payment_confirmation
+ traveler_map_update_payment_response
+ traveler_payment_response
+ traveler_personal_display_update_payment_response
+ traveler_other_services_payment_result
+ traveler_personal_data
+ traveler_roadside_data
+ toll_probe_data_for_isp
+ travel_services_provider_registration_response
+ price_data_for_broadcast
+ price_data_for_interactive
+ price_data_for_centers
+ price_data_details_for_centers
+ transit_fare_data_for_isp
+ traveler_vmt_account_reports_to_trav
+ traveler_vmt_payment_request_to_trav
+ traveler_personal_vmt_account_reports_to_trav
+ traveler_personal_vmt_payment_request_to_trav

payment_to_em

This data is used by the Manage Transit and Provide Electronic Payment Services functions to send data about a violator of the toll, parking lot or fare collection processes to the Manage Emergency Services function. It consists of the following data items each of which is defined it its own DDE:

fare_violation_information
+ parking_lot_violation_information
+ toll_violation_information
+ alert_notification_status_from_tolls
+ evacuation_toll_change_response

pedestrian_adaptive_data

This data flow is used within the Manage Traffic function and contains data about adaptive control data used by indicators that are pedestrian controllers to enable them to control traffic. The format of the data will depend upon the type of adaptive control being used.

pedestrian_control_commands

This data flow is the actual control commands that make the pedestrian controller change the traffic 'stop/go' and pedestrian 'walk/don't walk' outputs shown by its phases. The actual format of the control commands will depend on national standards being developed for controller fixed time plans, e.g. NTCIP. However the data flow can handle all projected type of controller and control commands formats.

pedestrian_cycle_time

This data flow contains data about the time taken to complete all the control commands in an pedestrian fixed time plan once only.

pedestrian_data

This data flow is used within the Manage Traffic function and contains a list of indicators for which pedestrian demands have been found to be present. These indicators are in fact traffic signal controllers that are capable of servicing the pedestrian demand and enabling pedestrians to cross the road or highway is a safe and coordinated manner. This data is used to determine the traffic control strategy for signalized traffic intersections. The data flow consists of the following items each of which is defined in its own DDE:

indicator_list
+ 1{pedestrian_demand}list_size

pedestrian_data_for_signage

This data flow is used within the Manage Traffic function to provide pedestrian crossing data from other roadway devices (controllers, sensors) to be used to generate a message for in-vehicle signage. It consists of the following data items each of which is defined in its own DDE:

indicator_pedestrian_control_data
+ pedestrian_demand

pedestrian_demand

This data flow is used within the Manage Traffic function. It contains processed pedestrian surveillance data obtained from sensors within the road (surface street) and highway network served by the TMC. The data is used to determine the traffic control strategy for signalized traffic intersections.

pedestrian_equipment_data

This data flow provides information about each pedestrian intersection, i.e. an interface between pedestrians and road vehicles that enables one or the other to have controlled right of way. The information is required so that its control using adaptive, fixed time or local techniques can be properly implemented when needed. Note that the indicator type data in data that forms part of the indicator identity will be set to that for pedestrian controllers. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity + pedestrian_phase_data}

pedestrian_fixed_time_data

This data flow contains data about fixed time control data used by indicators that are pedestrian controllers to enable them to control traffic. The data will be made up of the following items:

pedestrian_cycle_time
+ pedestrian_offset_time
+ pedestrian_control_commands

pedestrian_offset_time

This data flow is the relative start time of the cycle of pedestrian control commands and is set at a value that will achieve synchronization between adjacent controllers.

pedestrian_phase_data

This data flow contains information about the way in which each pedestrian controller operates, i.e. the minimum and maximum phase timings, phase change timings, etc. The data will be in integer format.

pedestrian_sensor_data

This data flow is used within the Manage Traffic function and contains the pedestrian data obtained from processing the other inputs from sensors around the road network. It consists of the following data items each of which is defined in its own DDE:

node_list + 1{pedestrian_demand}node_list

pedestrian_sensor_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of pedestrian sensor equipment for the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can monitor the configuration, health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

pedestrian_sensor_status

This data flow provides the operational status (state of the device, configuration, and fault data) of pedestrian sensor equipment for the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

perishability_date

This data flow is the date/time stamp of when the data being described will be removed from the archive, either the local source agencies storage or the permanent archive store. This data flow consists of the following items each of which is defined in its own DDE:

date
+ time

permit_coordination

This data flow is used within the Manage Traffic function and contains information used in the coordination of permits for special travel requirements which involve different agencies and jurisdictions. This information provides the Manage Traffic function with schedule and route information to prepare special travel and traffic controls for the transport of non-typical loads or roadway activities that require permits. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time
+ permit_type
+ permit_route_plan
+ permit_traffic_controls

permit_cost

This data flow is used within the Manage Commercial Vehicles function and contains the cost of a commercial vehicle permit. It consists of the following data item which is defined in its own DDE:

cost

permit_route_plan

This data flow is used within the Manage Traffic function and defines the links in the road (surface street) and highway network to be traversed by a commercial vehicle carrying a special load. It is derived from the route produced for the commercial vehicle carrying the load and requires special traffic control strategies to enable the vehicle to pass through the network with the minimum of interruption to other traffic. This may involve coordination between multiple agencies due to inter-jurisdiction travel or travel outside the geographic area served by the local TMC and so may require that the data be sent to other TMC's. The data flow consists of the following data items each of which is defined in its own DDE:

link_list
+ load_description

permit_traffic_controls

This data flow is used within the Manage Traffic function and defines the special traffic control strategy needed to enable the passage of a commercial vehicle containing a special permitted load through the road (surface street) and highway network included in the vehicle's route. The control strategy may affect both intersection signal controllers and/or dynamic message signs (DMS) used for lane control, and/or ramp metering controllers used to regulate the entry of vehicles onto highways. The data flow consists of the following data items each of which is defined in its own DDE:

selected_roadway_control_strategy
+ selected_ramp_control_strategy

permit_type

This data flow is used within the Manage Traffic function and defines the type of transport permit associated with major transport of special loads. A special load is defined as being one that either contains hazardous material (HAZMAT load) and/or is over size or over weight. The data flow shall use a character code to identify each permit type.

personal_identification_status

This data flow provides information about the status of any personal identifiers associated with the described data. This data flow describes either the presence of personal information, or whether the identifying data has been hashed (replaced with system unique codes) or stripped out completely.

personal_parking_facility_information

This data flow contains details concerning the parking facility at a transit stop (e.g., escalator/elevator operational, entrance open/closed) for output to a traveler's personal device.

personal_traveler_information

This data flow is used within the Provide Driver and Traveler Services function and contains the general traveler information to be displayed to a traveler using a personal device. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_personal_evacuation_traveler_information
+ traveler_personal_transportation_system_status
+ traveler_personal_wide_area_alert_information
+ traveler_personal_emergency_traveler_information
+ traveler_personal_broadcast_traffic_data
+ traveler_personal_broadcast_transit_data
+ traveler_personal_broadcast_incident_information
+ traveler_personal_broadcast_weather_data
+ traveler_personal_broadcast_event_information
+ traveler_personal_broadcast_parking_data
+ traveler_personal_broadcast_multimodal_data
+ traveler_personal_broadcast_price_data

planned_disaster_response_m_and_c_available_resources

This data flow contains the resources maintenance and construction has planned to use in the event of a disaster. The data flow consists of the following data items which are defined in their own DDE:

m_and_c_resources

planned_disaster_response_m_and_c_work_plan

This data flow contains the work plan and schedule maintenance and construction has planned to use in the event of a disaster. It consists of the following data items each of which is defined in its own DDE:

m_and_c_work_plans

planned_disaster_response_oem_available_resources

This data flow contains the resources other emergency management centers plan to use in the event of a disaster. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_vehicle_availability

planned_disaster_response_rail_available_resources

This data flow contains the resources rail has planned to use in the event of a disaster. The data flow consists of the following data

items each of which is defined in its own DDE:

rail_available_resources

planned_disaster_response_rail_schedule
This data flow contains the schedule rail has planned to use in the event of a disaster.

planned_disaster_response_traffic_available_resources
This data flow contains the resources traffic management has planned to use in the event of a disaster. The data flow consists of the following data items which are defined in their own DDE:

traffic_resources_available

planned_disaster_response_transit_available_resources
This data flow contains the resources transit has planned to use in the event of a disaster. The data flow consists of the following data items which are defined in their own DDE:

transit_resources_available

planned_disaster_response_transit_fares
This data flow contains the fares transit has planned to use in the event of a disaster. The data flow consists of the following data items which are defined in their own DDE:

transit_fare

planned_disaster_response_transit_routes
This data flow contains the routes transit has planned to use in the event of a disaster. It consists of the following data items each of which is defined in its own DDE:

transit_route

planned_disaster_response_transit_schedule
This data flow contains the schedule transit has planned to use in the event of a disaster. The data flow consists of the following data items which are defined in their own DDE:

transit_schedule_data

planned_evacuation_m_and_c_available_resources
This data flow contains the resources maintenance and construction has planned to use in support of an evacuation. The data flow consists of the following data items which are defined in their own DDE:

m_and_c_resources

planned_evacuation_m_and_c_work_plan
This data flow contains the work plan maintenance and construction has planned to use in support of an evacuation. It consists of the following data items each of which is defined in its own DDE:

m_and_c_work_plans

planned_evacuation_oem_available_resources
This data flow contains the resources other emergency management centers plan to use in support of an evacuation. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_vehicle_availability

planned_evacuation_rail_available_resources
This data flow contains the resources rail has planned to use to support an evacuation. The data flow consists of the following data items each of which is defined in its own DDE:

rail_available_resources

planned_evacuation_rail_schedule
This data flow contains the schedule rail has planned to use to support an evacuation.

planned_evacuation_traffic_available_resources
This data flow contains the resources traffic management has planned to use in support of an evacuation. The data flow consists of the following data items which are defined in their own DDE:

traffic_resources_available

planned_evacuation_transit_available_resources
This data flow contains the resources transit has planned to use in support of an evacuation. The data flow consists of the following data items which are defined in their own DDE:

transit_resources_available

planned_evacuation_transit_fares
This data flow contains the fares transit has planned to use in support of an evacuation. The data flow consists of the following data items which are defined in their own DDE:

transit_fare

planned_evacuation_transit_routes
This data flow contains the routes transit has planned to use in support of an evacuation. It consists of the following data items each of which is defined in its own DDE:

transit_route

planned_evacuation_transit_schedule
This data flow contains the schedule transit has planned to use in support of an evacuation. The data flow consists of the following data items which are defined in their own DDE:

transit_schedule_data

planned_event_data
This data flow is used within the Manage Traffic function to transfer data about planned events from the Incident Management facility to the Provide Traffic Surveillance facility for storage. It contains the following data items each of which is defined in its own DDE:

list_size
+ list_size{planned_event_details}

planned_event_data_for_roadway_information
This data flow is used within the Manage Traffic function. It contains data about planned events for output as part of roadway information systems (e.g. DMS, HAR, in-vehicle signage). The data flow consists of the following data item which is defined in its own DDE:

planned_event_details

planned_event_details
This data flow is used within the Manage Traffic function and contains the details of a planned event. It consists of the following data items each of which is defined in its own DDE:

incident_duration
+ incident_location
+ incident_number
+ incident_severity
+ incident_start_time
+ incident_type
+ incident_traffic_impact
+ crossing_closure_schedule

planned_events
This data flow is used within the Manage Traffic function and contains a list of planned events due to take place in the future. It contains the following data items each of which is defined in its own DDE:

list_size{planned_event_details}

planned_events_data
This data flow is used within the Manage Traffic function and contains data about planned events. The data consists if the following items each of which is defined in its own DDE:

list_size
+ list_size{planned_event_details}

planned_events_data_output
This data flow is used within the Manage Traffic function and contains data about planned events for output to traffic operations personnel. It consists if the following items each of which is defined in its own DDE:

incident_location
+ incident_start_time
+ incident_duration
+ incident_type
+ incident_severity
+ incident_traffic_impact

planned_events_for_em_response
This data flow from the Manage Traffic function is used to transfer data about planned events. It contains the following data

items each of which is defined in its own DDE:

list_size
+ list_size{planned_event_details}

planned_events_for_maint
This data flow is used by the Manage Traffic function to transfer data about planned events. It contains the following data items each of which is defined in its own DDE:

list_size
+ list_size{planned_event_details}

planned_events_local_data
This data flow is used within the Manage Traffic function and contains a copy of the contents of the store of planned events. This has been requested by the same function in another traffic management center (TMC) to which it will be sent by another process. The data flow consists of the following data items each of which is defined in its own DDE:

tmc_identity
+ list_size
+ list_size{planned_events_data}
+ crossing_closure_schedule

planned_events_new_data
This data flow is used within the Manage Traffic function and contains data about a new planned event which must be added to the store of planned events. It consists of the following items each of which is defined in its own DDE:

incident_location
+ incident_start_time
+ incident_duration
+ incident_type
+ incident_severity
+ incident_traffic_impact
+ crossing_closure_schedule

planned_events_store
This data store is used within the Manage Traffic function and holds data about events that have been planned. This means that their occurrence is certain but that it will be at some time in the future. The data store consists if the following items each of which is defined in its own DDE:

list_size
+ list_size{planned_event_details}
+ crossing_closure_schedule

planned_freight_route
This data flow contains routing information for freight equipment transported by a commercial vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

cvo_route_for_freight

planned_incident_response
This data flow is used within Manage Traffic and contains details of what should be done as a response for each type of incident. It contains the following data items each of which is defined in its own DDE:

agency_incident_response_procedures
+ traffic_control_strategy_alterations
+ dms_displays

platoon_action
This data flow indicates the type of action to be taken in respect of platoon following. The actions could be null (manual or other non-automated control mode), join platoon, leave automated lanes, exit (emergency and means steer left), steer left, steer right, center steering.

platoon_change_lane_servo_override
This data flow is used within the Provide Vehicle Control and Monitoring function and contains data which will cause the vehicle's steering to be altered so that the vehicle changes lane and continue to follow the next vehicle in front which is part of the platoon.

platoon_following_commands
This data flow is used within the Provide Vehicle Control and Monitoring function and is a combination of all the servo commands generated by the various processes. It consists of the following data items each of which is defined in its own DDE:

platoon_speed_servo_override
+ platoon_headway_servo_override
+ platoon_lane_servo_override
+ platoon_change_lane_servo_override

platoon_headway_servo_override
This data flow is used within the Provide Vehicle Control and Monitoring function and contains data showing any changes required to the current brake setting in order to increase or decrease the headway between the vehicle and the one it is following in a platoon.

platoon_lane_servo_override
This data flow contains data showing any changes required to the vehicle's steering in order that the vehicle can continue to follow the next vehicle in front which is part of the platoon.

platoon_speed_servo_override
This data flow is used within the Provide Vehicle Control and Monitoring function and contains data showing the speed the vehicle is to maintain now that it is part of a platoon.

platoon_status
This data flow is used within the Provide Vehicle Control and Monitoring function and indicates the current platoon status and may take the value of no vehicles front or rear, i.e. a platoon of one, searching for platoon, joining platoon, running in platoon, leaving automated lane, control failure manual input received vehicle and/or driver unsafe.

platooning_selected
This data flow contains an indication that vehicle platooning has not been selected by the driver or that the existing platooning must be canceled. It also contains values which mean that the driver has selected vehicle platooning.

pollution_acceptance_data
This data flow contains the levels of pollutants which are acceptable, i.e. the presence of pollutants within the area served by the function at or below these levels will not create an "out of specification" condition that may ultimately lead to a pollution incident being reported. A pollution incident will only be reported if the value for the particular pollutant is exceeded for the length of time specified in the pollution_acceptance_times data flow. These levels will be set at lower values than those defined in the pollution_tolerance_data data flow.

pollution_acceptance_times
This data flow contains the times for which the levels of pollution defined in the pollution_acceptance_data flow may exist before they create an "out of specification" condition that may ultimately result in a pollution incident being reported. These times will be longer than those for the levels defined in the pollution_tolerance_data flow.

pollution_incident
This data flow contains details of a current or predicted pollution incident. The incident type will depend on the type of pollutant that is involved. The data flow consists of the following data items each of which is defined in its own DDE:

incident_start_time
+ incident_duration
+ incident_location
+ incident_severity
+ incident_type

pollution_reference_data
This store is used by processes within the Manage Traffic function and contains data about acceptable and tolerable pollution levels. It consists of the following data items each of which is defined in its own DDE:

pollution_acceptance_data
+ pollution_acceptance_times
+ pollution_tolerance_data
+ pollution_tolerance_times

pollution_reference_data_archive_request
This data flow is used within the Manage Traffic function and is a request for the output of the current contents of the store of pollution reference data to be sent to the archive data management interface process.

pollution_reference_data_output
This data flow is used within the Manage Traffic function and contains the current contents of the store of pollution reference data for output to the emissions operations personnel via the interface process. It consists of the following data items each of which is defined in its own DDE:

pollution_acceptance_data
+ pollution_acceptance_times
+ pollution_tolerance_data
+ pollution_tolerance_times

pollution_reference_data_request
This data flow is used within the Manage Traffic function and is a request for the output of the current contents of the store of pollution reference data to be sent to the emissions operations personnel interface process.

pollution_reference_data_update
This data flow is used within the Manage Traffic function and contains updates to the contents of the store of pollution reference

data. It may consist of any of the data items that form part of the data store.

pollution_sensor_control

This data flow, sent by emissions operations personnel, contains configuration and control information for pollution sensors. It consists of the following item which is defined in its own DDE:

pollution_sensor_control_parameters

pollution_sensor_control_data

This data flow is used within the Manage Traffic function and contains configuration and control information for a pollution sensor.

pollution_sensor_control_parameters

This data flow contains configuration and control information for pollution sensors. It consists of the following items each of which is defined in its own DDE:

pollution_sensor_control_data
+ sensor_identity
+ station_id

pollution_sensor_data

This data flow is used within the Manage Traffic function and contains the digitized values of pollution levels obtained from sensors in the area served by the function. It consists of the following data items each of which is defined in its own DDE:

current_carbon_monoxide_pollution
+ current_hydrocarbon_pollution
+ current_nitrogen_oxides_pollution
+ current_ozone_pollution
+ current_particulate_pollution
+ current_roadside_pollution_location
+ current_sulfur_dioxide_pollution
+ sensor_identity
+ station_id

pollution_sensor_status

This data flow provides the operational status (state of the device, configuration, and fault data) of a pollution sensor. It consists of the following items each of which is defined in its own DDE:

sensor_device_status
+ sensor_identity
+ station_id

pollution_sensor_status_for_operator

This data flow provides the operational status (state of the device, configuration, and fault data) of a pollution sensor. It consists of the following items each of which is defined in its own DDE:

sensor_device_status
+ sensor_identity
+ station_id

pollution_state

This store is used within the Manage Traffic function to hold the current levels of pollutants in the different parts of the geographic area covered by the function, as well as collected at the roadside and from particular vehicle types. It consists of the following data item that provides the actual levels of various pollutants, which is defined in its own DDE:

pollution_sensor_data

pollution_state_data

This data flow is used within the Manage Traffic function as a means of transferring current pollution data from the Manage Emissions facility to the Manage Demand facility. It contains data about the current levels of pollution obtained from the store of pollution data and consists of the following data items each of which is defined in its own DDE:

current_ozone_pollution
+ current_nitrogen_oxides_pollution
+ current_sulfur_dioxide_pollution
+ current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution
+ current_particulate_pollution
+ current_pollution_location

pollution_state_data_output

This data flow is used within the Manage Traffic function and contains the current contents of the store of pollution state data for output to the emissions operations personnel via the interface process. It consists of the following data items each of which is defined in its own DDE:

current_ozone_pollution
+ current_nitrogen_oxides_pollution
+ current_sulfur_dioxide_pollution
+ current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution
+ current_particulate_pollution
+ current_pollution_location

pollution_state_data_output_request

This data flow is used within the Manage Traffic function and is a request for the output of the current contents of the store of pollution state data to be sent to the emissions operations personnel interface process.

pollution_state_data_request

This data flow is used within the Manage Traffic function as a means of requesting current pollution data to be sent from the Manage Emissions facility to the Manage Demand facility. It contains request for data about current levels of pollution. This data can be requested for a roadside or wide area location.

pollution_state_static_acceptance_criteria

This data flow is used within the Manage Traffic function and contains data about acceptable and tolerable levels of atmospheric pollution. It consists of the following items of data each of which is defined in its own DDE:

pollution_acceptance_data
+ pollution_acceptance_times
+ pollution_tolerance_data
+ pollution_tolerance_times

pollution_state_static_collection

This data flow is used within the Manage Traffic function and contains the current states of the various types of pollution present in the atmosphere and at the roadside within the geographic area served by the function, i.e. static pollution data. It consists of the following data item which is defined in its own DDE:

pollution_sensor_data

pollution_tolerance_data

This data flow contains the levels of pollutants which are tolerable, i.e. the presence of pollutants within the area served by the function at or below this level will not create an "out of specification" condition that may result in a pollution incident being reported. A pollution incident will only be reported if the value for the particular pollutant is exceeded for the length of time specified in the pollution_tolerance_times data flow.

pollution_tolerance_times

This data flow contains the times for which the levels of pollution defined in the pollution_tolerance_data flow may exist before they create an "out of specification" condition that may ultimately result in a pollution incident being reported. These times will be shorter than those for the levels defined in the pollution_acceptance_data flow.

position_advisory_message

This data flow contains a short description of the action that the driver should take to avoid the object that is near to the vehicle, and with which the vehicle will come into contact if no avoidance action is taken.

position_critical_state

This data flow contains an indication that an object is too close to the vehicle. This object may be stationary or itself moving, and will come into contact with the vehicle of no action is taken by the driver.

position_warning_to_front

This data flow is used within the Provide Vehicle Monitoring and Control function and the Provide Driver and Traveler Services function. It contains a warning that there is something immediately to the front of the vehicle that is a hazard to the vehicle if it starts (or continues) to move in that direction, plus a short description of the action that the driver should take to avoid the object. The data flow consists of the following data items each of which is defined in its own DDE:

position_critical_state
+ position_advisory_message

position_warning_to_rear

This data flow is used within the Provide Vehicle Monitoring and Control function and the Provide Driver and Traveler Services function. It contains a warning that there is something behind the vehicle that is a hazard to the vehicle if it starts (or continues) to move in that direction, plus a short description of the action that the driver should take to avoid the object. The data flow consists of the following data items each of which is defined in its own DDE:

position_critical_state
+ position_advisory_message

position_warning_to_side

This data flow is used within the Provide Vehicle Monitoring and Control function and the Provide Driver and Traveler Services function. It contains a warning that there is something to one side or the other of the vehicle that is a hazard to the vehicle if it starts (or continues) to move in that direction, plus a short description of the action that the driver should take to avoid the object.

The data flow consists of the following data items each of which is defined in its own DDE:

position_critical_state
+ position_advisory_message

position_warnings
This data flow is sent from the Provide Vehicle Monitoring and Control function to the Provide Driver and Traveler Services function. It contains position warnings for a driver, each of which is generated when an object gets close enough to the vehicle to become a hazard if no action is taken by the driver. The data flow consists of the following data items each of which is defined in its own DDE:

position_warning_to_front
+ position_warning_to_side
+ position_warning_to_rear

possible_defined_response_identity
This data flow is used within the Manage Traffic function and is the identity of each possible incident defined response that has been produced from an analysis of past responses and store for possible future use.

possible_defined_responses
This data store is used within the Manage Traffic function and contains all the possible defined incident responses that have been found from an analysis of past responses. It consists of the following data items each of which is defined in its own DDE:

agency_incident_response_procedures
+ incident_duration
+ incident_severity
+ incident_traffic_impact
+ incident_type
+ possible_defined_response_identity
+ traffic_control_strategy_alterations
+ dms_displays

possible_defined_responses_output
This data flow is used within Manage Traffic and contains details of possible defined incident responses that have been produced from an analysis of past responses and are to be output to traffic operations personnel. It contains the following data items each of which is defined in its own DDE:

agency_incident_response_procedures
+ incident_duration
+ incident_severity
+ incident_traffic_impact
+ incident_type
+ possible_defined_response_identity
+ traffic_control_strategy_alterations
+ dms_displays

possible_defined_responses_output_request
This data flow is used within the Manage Traffic function and contains a request that possible defined incident responses are output to the traffic operations personnel. It includes the following data item which is defined in its own DDE:

possible_defined_response_identity

possible_detected_incidents
This data flow is used within the Manage Traffic function. It contains details of a suspected traffic incident which has been detected from an analysis of detector data. The incident type would be set to 'unknown' since the traffic data would not yield sufficient information on its own to define the type. The data consists of the following items each of which is defined in its own DDE:

incident_location
+ incident_type

possible_incident_data_update
This data flow is used within the Manage Traffic function to request that the process responsible for re-classifying possible incidents runs because new data has been loaded into the store of possible incidents.

possible_incidents
This data store is used within the Manage Traffic function to store details of possible incidents that have been reported from a variety of sources, but which have not yet been classified as planned events or current incidents. It contains the following data items each of which is defined in its own DDE:

current_weather_observations
+ event_name
+ event_start_time
+ event_duration

+ event_location
+ event_attendance_expected
+ incident_start_time
+ incident_duration
+ incident_location
+ incident_severity
+ incident_type
+ incident_confidence_level
+ miso_scale_weather_forecasts
+ meso_scale_weather_forecasts
+ synoptic_scale_weather_forecasts
+ climatic_scale_weather_forecasts
+ weather_scale_forecast_data_attributes
+ environmental_data_for_incidents
+ border_crossing_traffic_status

possible_incidents_data_output

This data flow is used within the Manage Traffic function and contains data about possible incidents for output to traffic operations personnel. It consists if the following items each of which is defined in its own DDE:

incident_location
+ incident_start_time
+ incident_confidence_level
+ incident_duration
+ incident_type
+ incident_severity

predefined_traffic_disaster_plan

This data flow is used within the Manage Traffic function. It contains a predefined disaster response and recovery plan currently held in the store of defined incident responses.

predefined_traffic_evacuation_plan

This data flow is used within the Manage Traffic function. It contains a predefined evacuation plan currently held in the store of defined incident responses.

predetermined_incident_response_data

This data flow represents a predetermined incident response plan.

predicted_border_wait_time

This data flow contains the predicted wait time for traffic at a border crossing. This may include the time period for which the prediction is valid and measures by vehicle type, lane, or type of lane.

predicted_highway_network_data

This data flow is used within the Manage Traffic function and contains data about predicted traffic conditions on links in the highway network served by the function. This data is produced by the predictive model process. It consists of the following data items each of which is defined in its own DDE:

link_list_for_highways
+ list_size{link_journey_time
    + link_delay
        + link_speed
    + link_occupancy}

predicted_hov_lane_data

This data flow is used within the Manage Traffic function and contains prediction of the numbers of both legal and illegal vehicles using High Occupancy Vehicle (HOV) lanes in the road and highway network served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{hov_lane_vehicle_count
    + hov_lane_violation_count}

predicted_hri_closures

This data flow is used within the Manage Traffic function and contains predictions of the times and locations of closures at highway rail intersections in the road and highway network served by the function.

predicted_hri_state

This data flow represents the predicted state of the roadway at an HRI and includes pertinent information that can be used to anticipate probable train/vehicle collisions.

predicted_o_d_matrix

This data flow contains an origin-destination (o-d) matrix that has been produced by the predictive model within the function. It will apply to the road (surface street) and highway network in the geographic area served by the function. The data will comprise a list of o-d pairs and the traffic flow between them, where the pairs will be identified by link identities.

predicted_other_routes_use

This data flow is used within the Manage Traffic function. It is produced by the predictive model process and contains information about how many travelers it is predicted will be guided down each non-vehicle and non-transit route segment and the average journey time for each route segment. The data will be stored in ascending route segment number order (i.e. from 1 to the maximum number of route segments), and consists of the following data items each of which is defined in its own DDE:

route_segment_total_number
+ route_segment_total_number{route_segment_identity
+ time_period{route_segment_guided_travelers}
+ route_segment_journey_time}

predicted_parking_lot_data

This data flow is used within the Manage Traffic function and contains predicted parking lot states produced by the predictive model process. It will apply to all the parking lots in the geographic area served by the function, and consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_identity
+ parking_lot_state
+ parking_lot_occupancy}

predicted_road_network_data

This data flow is used within the Manage Traffic function and contains data about predicted traffic conditions on links in the road network served by the function. This data is produced by the predictive model process. It consists of the following data items each of which is defined in its own DDE:

link_list_for_roads
+ list_size{link_journey_time
+ link_delay
+ link_speed
+ link_occupancy}

predicted_road_network_use

This data flow is used within the Manage Traffic function. It is produced by the predictive model process and contains information about how many vehicles it is predicted will be guided down each route segment and the average journey time for each route segment. The data will only apply to those route segments that are related to links in the road and highway network served by the Manage Traffic function. It will be stored in ascending route segment number order (i.e. from 1 to the maximum number of route segments), and consists of the following data items each of which is defined in its own DDE:

route_segment_total_number
+ route_segment_total_number{route_segment_identity
+ time_period{route_segment_guided_vehicles}
+ route_segment_journey_time}

prediction_data

This data flow is used within the Manage Traffic function and is also sent by that function to the Manage Transit and Provide Driver and Traveler Services function. It contains output from the predictive model process showing predictions of traffic data for route segments on the road and highway network served by the Manage Traffic function. The data flow consists of the following items each of which is defined in its own DDE:

list_size{route_segment_identity
+ route_segment_volume_delay_predictions
+ route_segment_queue_delay_predictions
+ route_segment_speed_predictions
+ route_segment_occupancy_predictions}

predictive_data_for_retrieval

This data flow is used within the Manage Traffic function. It contains a subset of the predictive model data stored by the function which will be used as the basis for traffic data that is sent to other functions. The data flow consists of the following data items each of which is defined in its own DDE:

m_and_c_work_plans
+ predicted_highway_network_data
+ predicted_hov_lane_data
+ predicted_other_routes_use
+ predicted_parking_lot_data
+ predicted_road_network_data
+ predicted_road_network_use

predictive_model_data

This data store is used within the Manage Traffic function and contains the model of the predicted traffic conditions on the road network served by the function. This data is produced by the predictive model generation process and is used for determining traffic management strategies. It consists of the following data items each of which is defined in its own DDE:

predicted_highway_network_data
+ predicted_hov_lane_data
+ predicted_o_d_matrix
+ predicted_other_routes_use
+ predicted_parking_lot_data
+ predicted_road_network_data
+ predicted_road_network_use
+ predicted_hri_closures

predictive_traffic_data_for_retrieval

This data flow contains predictive traffic information that is provided to other ITS functions for use in providing traveler services. The data flow consists of the following data items each of which is defined in its own DDE:

m_and_c_work_plans
+ predicted_highway_network_data
+ predicted_hov_lane_data
+ predicted_other_routes_use
+ predicted_road_network_data
+ predicted_road_network_use

preemption_command

This data flow is used by the Revert to Safe Mode process to preempt the local control plans of an HRI and force it to a prescribed safe fall-back mode in the event of a malfunction.

preferences

This data flow is used within the Provide Driver and Traveler Services function and is also sent to that function by the Provide Vehicle Monitoring and Control function as part of the data needed to request a route involving automatic vehicle operation lanes. It contains the preferences being placed on the choice of a route being requested by a driver or traveler and consists of the following data items each of which is defined in its own DDE:

modes
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ preferred_weather_conditions
+ preferred_ridesharing_options
+ preferred_transit_options

preferred_alternate_routes

This data flow contains the number of alternate routes that are to be provided to the driver or traveler making the route request. These alternate routes will be in addition to the primary route, which will be the one that most nearly meets the specified preferences and constraints.

preferred_ridesharing_options

This data flow is used within the Provide Driver and Traveler Services function and contains the details of options that a traveler can associate with a ridesharing request as part of a proposed trip.

preferred_route_segments

This data flow contains a list of preferred route segments. This is actually a list of preferred types of route segment, e.g. those containing automatic vehicle operation lanes. If no preference is identified, the route selection process will assume that it is free to choose any type of segment, although this will not include those with automated lanes unless this is specifically identified.

preferred_routes

This data flow contains a list of preferred route choices, e.g. a route must go via a particular place or avoid another place. The list will comprise a list of place names and enables a reasonable choice to be made.

preferred_transit_options

This data flow is used within the Provide Driver and Traveler Services function and contains details of the transit route options and modes of transit travel that a traveler has requested as part of a trip request. In addition to transit bus and light rail options, this data flow includes transit travel modes such as: automated guideway (bus rapid transit or BRT), cable car, commuter rail, demand responsive transit services, ferry boat, jitney, monorail, trolley bus, aerial tramway, vanpool and personal rapid transit. These examples appear in the National Transit Database.

preferred_weather_conditions

This data flow is used within the Provide Driver and Traveler Services function and contains preferences about weather conditions that the traveler has selected for a portion of a trip, e.g. only travel on dry weather, avoid freezing conditions, etc.

preplanned_disaster_response_plan

This data flow contains the preplanned disaster response and recovery plans. These plans are used by emergency disaster response functions to create a response and recovery plan that address a current disaster. The data flow consists of the following data item which is defined in its own DDE:

rail_preplanned_disaster_response_plan

+ transit_preplanned_disaster_response_plan
+ oem_preplanned_disaster_response_plan
+ m_and_c_preplanned_disaster_response_plan
+ traffic_preplanned_disaster_response_plan

preplanned_evacuation_plan

This data flow contains the preplanned evacuation plans. These plans are used by emergency evacuation management functions to address potential evacuation scenarios. The data flow consists of the following data items each of which is defined in its own DDE:

rail_preplanned_evacuation_plan
+ transit_preplanned_evacuation_plan
+ oem_preplanned_evacuation_plan
+ m_and_c_preplanned_evacuation_plan
+ traffic_preplanned_evacuation_plan

price_data

This data flow contains data on the current prices being charged for tolls, parking lots and transit fares, plus the response to a request from the Manage Demand facility for changes in the current prices. It consists the following data items each of which is defined in its own DDE:

+ parking_lot_charge_direct_details
+ parking_lot_charge_change_response
+ parking_charge_response_for_archive
+ other_parking_lot_price_data
+ toll_probe_data_for_traffic
+ transit_fare_direct_details
+ toll_price_changes_response
+ toll_price_direct_details

price_data_details_for_centers

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function and contains detailed information about the prices being charged for parking lots, tolls, and transit fares, and will be used to assist in other demand management applications. It consists of the following data items each of which is defined in its own DDE:

parking_lot_charge_details
+ toll_price_details

price_data_for_broadcast

This data flow is used to provide data on the current toll, parking, and transit prices and fares and is broadcast to travelers. The data flow consists of the following items each of which is defined in its own DDE:

parking_lot_price_data
+ toll_price_data
+ transit_fare_data
+ vmt_price_data

price_data_for_centers

This data flow is used to provide data on the current toll, parking, and transit prices and fares and is transmitted to other operational centers. The data flow consists of the following items each of which is defined in its own DDE:

parking_lot_price_data
+ toll_price_data
+ transit_fare_data
+ vmt_price_data

price_data_for_interactive

This data flow is used to provide data, processed for traveler consumption, on the current toll, parking, and transit prices and fares and is sent to travelers upon request. The data flow consists of the following items each of which is defined in its own DDE:

parking_lot_price_data
+ toll_price_data
+ transit_fare_data
+ vmt_price_data

price_data_for_services

This data store is used within the Provide Electronic Payments Services function to store data about prices being charged for tolls, parking lot spaces and regular transit fares. It consists of the following data items each of which is defined in its own DDE:

parking_lot_price_details
+ toll_price_values
+ transit_fare_data
+ vmt_price_data

price_data_for_trip_planning

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function and contains data on the current prices being charged for tolls, parking lots and transit fares. It consists the following data items each of which is defined in its own DDE:

toll_price_data
+ parking_lot_price_data
+ transit_fare_data
+ vmt_price_data

price_data_request

This data flow is used by several ITS functions to request price information on tolls, parking, and transit fares. It will be accompanied by other data flows to provide the origin and hence the return destination for the retrieved data.

price_data_request_from_interactive

This data flow is used within the Provide Driver and Traveler Services function. It contains a request for data about prices for tolls, parking, and transit that are available for use in interactive traveler information applications. The data flow consists of the following item which is defined in its own DDE:

price_data_request

price_data_request_from_trip_planning

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Service function to request the current prices for tolls, parking lot spaces and transit fares for use in Trip Planning.

price_request

This data flow is sent from the Manage Traffic function to the Provide Electronic Payment Service function. It is used to request the current prices for tolls, parking lot spaces and transit fares, to request changes to their current prices in order that the modal split of trips being undertaken by travelers can be changed, and to request parking lot and toll tag data for traffic journey time measurement. The data flow consists of the following data items each of which is defined in its own DDE:

parking_lot_charge_change_request
+ parking_lot_charge_direct_request
+ parking_charge_request_for_archive
+ other_parking_lot_price_data_request
+ transit_fare_direct_request
+ toll_price_changes_request
+ toll_price_direct_request

private_vehicle_occupants

This data item is used within the Manage Traffic function and contains a count of the number of occupants in a vehicle as measured by a detector located on, or near to the highway, as the vehicles pass by its sensor or from messages directly from the vehicle.

probe_data_collected_for_personnel

This data flow is used within the Provide Driver and Traveler Services function and contains information for use by personnel about the information collected from subscriber vehicles concerning travel times and environmental conditions on the roadway. The data flow consists of the following data item which is defined in its own DDE:

vehicle_probe_data

probe_data_collection_parameters

This data contains parameters to be used to govern vehicle probe data collection to support traveler services (trip planning, broadcast data, etc.).

probe_data_for_strategy

This data flow contains the link travel times, speed, and queue times calculated by processing probe data collected from vehicles on the road (surface street) and highway network served by the function for use in selecting traffic control strategies. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{link_queue_time
+ link_travel_time
+ link_speed }

probe_data_from_tolls

This data flow contains the aggregated probe data from vehicles as they pass electronic toll collection points. Data could include vehicle speeds and travel times for a given link or collection of links.

probe_data_from_transit

This data flow contains the aggregated probe data from tracking transit vehicles. Data could include transit vehicle speeds and travel times for a given link or collection of links.

processed_cargo_data

This data flow is used within the Provide Vehicle Monitoring and Control function. It contains data obtained from the processing

by sensors of analog data received on-board the vehicle about the composition and state of its cargo.

processed_env_info

This data flow contains processed environmental and road weather information. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

processed_env_info_for_display

This data flow contains processed environmental and road weather information for display to the maintenance and construction center personnel. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

processed_infrastructure_sensor_data

This data flow consists of processed information concerning the condition of the roadway infrastructure and is based on data from vehicle environmental probe data collected by short range communications equipment from passing vehicles. It consists of the following data items each of which is defined in its own DDE:

vehicle_env_probe_data_for_infrastructure_maint

processed_roadway_env_data

This data flow is used within the Manage Traffic function and contains environmental sensor data that has been processed ready for storage in both the current and historical data stores. It consists of the following item which is defined in it own DDE:

roadway_environment_conditions

processed_speed_sensor_data

This data flow represents speed sensor data from one or more sensors that has been processed at the roadside to provide aggregated speed information for the vehicles being measured by the sensors. The information could be provided ready for viewing at the receiving process (e.g. as a histogram of speed) or it could be provided in a form that requires additional processing at the receiving process before the information is displayed to operators.

processed_traffic_data

This data flow is used within the Manage Traffic function and contains traffic sensor data that has been processed ready for storage in both the current and historical data stores. It consists of the following items each of which is defined in it own DDE:

parking_lot_input_data
+ o_d_matrix
+ private_vehicle_occupants
+ ramp_data
+ strategy_data + link_state_data
+ hri_state_data
+ roadway_traffic_conditions
+ reversible_lane_data

profiles_for_alerts

This data flow contains traveler personal profiles (e.g. equipment capabilities, personal preferences) for obtaining traveler information alerts (traffic, transit, multimodal, emergency, yellow pages, etc.). This profile is submitted one time and then used to generate future information. It consists of the following data items each of which is defined in its own DDE:

list_size{traveler_contact_setting
+ traveler_device_setting
+ traveler_identity
+ traveler_preference_setting}

profiles_for_emergency_operations

This data flow contains traveler personal profiles (e.g. equipment capabilities, personal preferences) for obtaining emergency information. These profiles are submitted one time and then used to generate future information. It consists of the following data items each of which is defined in its own DDE:

list_size{traveler_contact_setting
+ traveler_device_setting
+ traveler_identity
+ traveler_preference_setting}

profiles_for_interactive

This data flow contains traveler personal profiles (e.g. equipment capabilities, personal preferences) for obtaining traveler

information (traffic, transit, multimodal, weather, etc.). These profiles are submitted one time and then used to generate future information. It consists of the following data items each of which is defined in its own DDE:

list_size{traveler_contact_setting
+ traveler_device_setting
+ traveler_identity
+ traveler_preference_setting}

profiles_for_route_guidance

This data flow contains traveler personal profiles (e.g. equipment capabilities, personal preferences) for obtaining route guidance information. These profiles are submitted one time and then used to generate future information. It consists of the following data items each of which is defined in its own DDE:

list_size{traveler_contact_setting
+ traveler_device_setting
+ traveler_identity
+ traveler_preference_setting}

profiles_for_route_selection

This data flow contains traveler personal profiles (e.g. equipment capabilities, personal preferences) for obtaining route selection information. These profiles are submitted one time and then used to generate future information. It consists of the following data items each of which is defined in its own DDE:

list_size{traveler_contact_setting
+ traveler_device_setting
+ traveler_identity
+ traveler_preference_setting}

profiles_for_travel_services

This data flow contains traveler personal profiles (e.g. equipment capabilities, personal preferences) for obtaining travel services information. These profiles are submitted one time and then used to generate future information. It consists of the following data items each of which is defined in its own DDE:

list_size{traveler_contact_setting
+ traveler_device_setting
+ traveler_identity
+ traveler_preference_setting}

profiles_for_trip_planning

This data flow contains traveler personal profiles (e.g. equipment capabilities, personal preferences) for obtaining trip planning information. These profiles are submitted one time and then used to generate future information. It consists of the following data items each of which is defined in its own DDE:

list_size{traveler_contact_setting
+ traveler_device_setting
+ traveler_identity
+ traveler_preference_setting}

Q

quality_control_attribute

This data flow identifies the data quality control screening technique applied to the data by the source function. Screening techniques may include flagging suspicious or anomalous data or removal of erroneous or suspicious values.

R

rail_available_resources

This data flow contains rail resources that are available for use. It includes tracks, locomotives, stations, rail cars, etc.

rail_disaster_response_plan

This data flow contains the resources, and schedule that are available from rail operations that may be used to respond to and to recover from the current disaster. The data flow consists of the following data items which are defined in their own DDE:

disaster_response_rail_available_resources
+ disaster_response_rail_schedule

rail_emergency_status_report

This flow contains the status of rail operations in supporting an emergency event.

rail_evacuation_plan

This data flow contains actual resources, and schedule that are available from rail operations that may be used to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

evacuation_rail_available_resources
+ evacuation_rail_schedule

rail_operations_advisories
This data flow contains advisory information for HRI vehicular traffic that has been derived from information received from rail operations.

rail_operations_data
This data flow contains requested and updated current rail operations data for the Manage Alerts and Advisories process.

rail_operations_device_command
This data flow contains HRI device commands that have been derived from information received from rail operations and provides for rail operations preemption capability.

rail_operations_message
This data flow contains advanced (predictive) data about an HRI operational status to be passed to rail operations. It is generated by the Manage HRI Traffic process for use by the Interact with Rail Operations process.

rail_operations_priority_data
This data flow contains urgent and current rail operations data relative to rail incidents or conditions that may require HRI to issue an alert or advisory.

rail_operations_query
This data flow provides requests current rail operations data from the Manage Rail Traffic Control Data process.

rail_operations_requests
This data flow is generated in response to a need for HRI status for rail operations.

rail_operations_update
This data flow provides urgent information from rail operations to the Manage Alerts and Advisories process for dissemination to ITS users.

rail_preplanned_disaster_response_plan
This data flow contains the preplanned disaster response and recovery plan for rail operations. These plans contain rail operations assets, schedules, etc. that rail has planned to utilize prior to the occurrence of a disaster. The data flow consists of the following data items which are defined in their own DDE:

planned_disaster_response_rail_available_resources
+ planned_disaster_response_rail_schedule

rail_preplanned_evacuation_plan
This data flow contains the preplanned evacuation plan for rail operations. These plans contain rail operations assets, schedules, etc. that rail has planned to utilize to support an evacuation. The data flow consists of the following data items which are defined in their own DDE:

planned_evacuation_rail_available_resources
+ planned_evacuation_rail_schedule

rail_schedules_data
This data flow contains information about scheduled rail operations for a specific locality and time frame. It includes train and maintenance schedules that may have an impact on traffic management.

rail_schedules_for_prediction
This data flow contains information for predictive traffic models about scheduled rail operations for a specific locality and time frame. It includes train and maintenance schedules received from rail operators that may have an impact on traffic management.

rail_services_costs
This data flow contains details of the costs for a traveler's use of heavy rail services that may be suitable for inclusion in the response to a traveler's trip request. These may be all on the same route, or on different routes. The data flow consists of the following data item which is defined in its own DDE:

cost

rail_services_destination
This data flow is used within the Provide Driver and Traveler Services function. It contains the destination of the heavy rail service(s) that are the closest fit with a traveler's proposed trip plan. This destination may be different to that provided in the multimodal services request as it will be a railroad station, rather than a town, or other geographic point. It may also not be the destination of the service operated by the railroad as the traveler may be leaving at some intermediate point. The data flow consists of the following data item which is defined in its own DDE:

route_point

rail_services_destination_arrival_time

This data flow is used within the Provide Driver and Traveler Services function. It contains the time at which a railroad service arrives the destination point for heavy rail services in a traveler's trip plan. This destination may not be the actual final destination of the railroad service, because the traveler may be leaving at some intermediate point along its route. The service will be a close fit with a traveler's proposed trip plan. The data flow consists of the following data item which is defined in its own DDE:

time

rail_services_details

This data flow is used within the Provide Driver and Traveler Services function and contains details of the heavy rail services that may be suitable for use by a traveler as part of a proposed trip. It consists of the following data items each of which is defined in its own DDE:

rail_services_costs
+ rail_services_routes
+ rail_services_schedules
+ rail_services_status

rail_services_intermediate_arrival_time

This data flow is used within the Provide Driver and Traveler Services function. It contains the time at which a railroad service arrives at an intermediate point on the part of a traveler's route to be provided by a railroad. These points are those at which the traveler has to change trains, or has a significant stop over time. There may be other intermediate points along the railroad route, but they are ignored because the traveler is expected to do nothing other than remain on-board the train. The railroad route will be that which provides the service that is a close fit to the requirements of the traveler's proposed trip. The data flow consists of the following data item which is defined in its own DDE:

time

rail_services_intermediate_depart_time

This data flow is used within the Provide Driver and Traveler Services function. It contains the time at which a railroad service departs from an intermediate point on the part of a traveler's route to be provided by a railroad These points are those at which the traveler has to change trains, or has a significant stop over time. There may be other intermediate points on the airline route, but they are ignored because the traveler is expected to do nothing other than remain on-board the train. The railroad route will be that which provides the service that is a close fit to the requirements of the traveler's proposed trip. The data flow consists of the following data item which is defined in its own DDE:

time

rail_services_intermediate_point

This data flow is used within the Provide Driver and Traveler Services function. It contains the location of an intermediate point on a route operated by a railroad. They will be railroad stations at which the traveler will have to change trains, or where the service has a significant stop over time. All other stops on the railroad route will ignored. The route will be that which provides the service that is a close fit to the requirements of the traveler's proposed trip. The data flow consists of the following data item which is defined in its own DDE:

route_point

rail_services_origin

This data flow is used within the Provide Driver and Traveler Services function. It contains the origin of the heavy rail service(s) that are the closest fit with a traveler's proposed trip plan. This origin may be different to that provided in the multimodal services request as it will be a railroad station, rather than a town, or other geographic point. It may also not be the origin of the service operated by the railroad as the traveler may be joining it at some intermediate point. The data flow consists of the following data item which is defined in its own DDE:

route_point

rail_services_origin_depart_time

This data flow is used within the Provide Driver and Traveler Services function. It contains the time at which a railroad service leaves the origin point for heavy rail services in a traveler's trip plan. This origin may not be the actual origin of the particular railroad service, because the traveler may be joining at some intermediate point along its route. The service will be a close fit with a traveler's proposed trip plan. The data flow consists of the following data item which is defined in its own DDE:

time

rail_services_route_details

This data flow is used within the Provide Driver and Traveler Services function. It contains details of a heavy rail route that will suit a traveler's proposed trip and is associated with a cost and a schedule. The route may have intermediate points at which the services calls, and at which the traveler may have to change from one train to another. There may be other intermediate points on the flight but these are of no concern to the traveler. The data flow consists of the following data items each of which is defined in its own DDE:

rail_services_origin
+ rail_services_intermediate_point

+ rail_services_destination

rail_services_routes

This data flow contains details of the routes served by heavy rail services. These may be suitable for use by a traveler as part of a proposed trip. It consists of the following data item which is defined in its own DDE:

rail_services_route_details

rail_services_schedule_details

This data flow is used within the Provide Driver and Traveler Services function. It contains details of the departure and arrival times at stations along a railroad route that will suit a traveler's proposed trip and are associated with a cost and a route. The route may have several of these intermediate stations at which the services stops, and at which the traveler may have to change from one train to another. There may be other stations at which the train stops, but the traveler is expected to remain on-board and therefore they are ignored. The data flow consists of the following data items each of which is defined in its own DDE:

rail_services_origin_depart_time
+ rail_services_intermediate_arrival_time
+ rail_services_intermediate_depart_time
+ rail_services_destination_arrival_time

rail_services_schedules

This data flow contains details of the schedules of services on the routes operated by heavy rail services, and may be suitable for use by a traveler as part of a proposed trip. It consists of the following data item which is defined in its own DDE:

rail_services_schedule_details

rail_services_status

This data flow contains the status of nearby rail stations (open or closed, general rail service delays, etc.).

rail_system_status_for_disaster

This data flow consists of a report of the current status of the rail system as viewed by rail operations for disaster response and recovery.

rail_system_status_for_evacuation

This data flow consists of a report of the current status of the rail system as viewed by rail operations for evacuation.

rail_traffic_control_data

This store provides a local ITS cache of rail operations data to be used for traffic management and coordination, travel demand management etc.

ramp_controls

This data flow is used within the Manage Traffic function and contains the actual control data to be passed to a ramp meter controller. The state will show either a proceed (green) or stop (red) state dependent on what has been determined as the best strategy for traffic entering the highway via the ramp.

ramp_data

This data flow is used within the Manage Traffic function and contains data which is used to control access to freeways etc. from ramps. It consists of the following items each of which is defined in its own DDE:

ramp_list
+ 1{vehicle_speed
  + vehicle_headway
  + vehicle_occupancy
  + private_vehicle_occupants}list_size

ramp_devices

This data flow includes information about each device used to output traffic management commands to vehicle drivers at highway entrance ramps. These devices are used as a means of controlling access to highways particularly during periods of peak traffic flow. This data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{ramp_identity + ramp_phase_data}

ramp_identity

This data flow is used within the Manage Traffic function to identify individual ramp metering equipment used for the control of traffic entering highways. The data flow consists of the following data items each of which is defined in its own DDE:

unit_number
+ location_identity
+ indicator_identity

ramp_list

This data flow is used within the Manage Traffic function and contains a list of the ramps to which a particular traffic control strategy is to be applied. The ramps are served by ramp metering equipment which has the ability to control vehicle access to

the highway. The data flow consists of the following data items each of which is defined by its own DDE:

list_size
+ 1{ramp_identity}list_size

ramp_phase_data
This data flow provides information about the way in which each highway ramp entry lane controller operates, i.e. the minimum and maximum phase timings, phase change timings, etc. plus the criteria which cause access to the highway to be restricted. The data will be in integer format.

ramp_signal_state
This data flow is used within the Manage Traffic function to indicate the required state of the ramp meter controllers at the entrance to the highway ramps controlled by the TMC. The data flow consists of the following data items each of which is defined in its own DDE:

ramp_list
+ 1{ramp_controls}list_size

reclassify_incidents
This data flow is used within the Manage Traffic function to request that the process to re-classify incidents is run.

record_size
This data flow identifies the number of records contained within the set of data being described, held within either the local agencies storage or in the permanent archive.

region_identity
This data flow contains the identity of the region for which traveler information is requested or the region for which information is being returned to the traveler.

remote_transit_vehicle_disable
This data flow contains the command to disable a transit vehicle. Conditions where this command may occur include an incident in progress concerning the transit vehicle, such as a hijacking or armed robbery. This command would not be used for a less serious incident, such as an argument between passengers, or for a health emergency (e.g., heart attack) where the vehicle might be moving towards a hospital, or paramedics are on the way. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time
+ transit_vehicle_location

remote_transit_vehicle_security
This DFD flow from Support Transit Security and Coordination to Provide Transit Vehicle Security contains the command to disable a transit vehicle or to reset transit vehicle disabling if previously set as well as information concerning wide area alerts and response to vehicle alarms. The data flow consists of the following data items each of which is defined in its own DDE:

remote_transit_vehicle_disable
+ transit_vehicle_disable_reset
+ secure_transit_vehicle_alarm_acknowledge_for_transit
+ on_board_traveler_alarm_response_from_transit
+ transit_vehicle_operator_wide_area_alerts

remote_traveler_information
This data flow is used within the Provide Driver and Traveler Services function and contains the traveler information to be displayed to a traveler at a kiosk or remote traveler support system. The data flow consists of the following data items each of which is defined in its own DDE:

kiosk_identity
+ traveler_evacuation_traveler_information
+ traveler_transportation_system_status
+ traveler_wide_area_alert_information
+ traveler_emergency_traveler_information
+ traveler_broadcast_traffic_data
+ traveler_broadcast_transit_data
+ traveler_broadcast_incident_information
+ traveler_broadcast_weather_data
+ traveler_broadcast_event_information
+ traveler_broadcast_parking_data
+ traveler_broadcast_multimodal_data
+ traveler_broadcast_price_data

remote_video_image_control
This data flow is used within the Manage Traffic function. It is a request from the Emergency Management function to control closed circuit televisions (cctv) images of incidents that occurred on roadways.

request_data_collection_map_update
This data flow is used within the Provide Driver and Traveler Services function and contains a request which has originated from the ISP operator for an update to the store of digitized map data used by the traveler data collection process to be requested from the map provider.

request_demand_display_update
This data flow is used within the Manage Traffic function to request an update of the current digitized map data used as a background for traffic operations personnel data displays. It is generated as a result of a specific request for an update from the traffic operations personnel. The map data produced as a result of this request will be provided by a specialist supplier.

request_emergency_display_update
This data flow is used within the Manage Emergency Services function to request an update of the current digitized map data used as a background for emergency system operator data displays. It is generated as a result of a specific request for an update from the emergency system operator. The map data produced as a result of this request will be provided by a specialist supplier.

request_erms_acknowledge
This data flow is used to transfer data between the Manage Emergency Services function and the Provide Vehicle Monitoring and Control function. It contains the following data items each of which is defined in its own DDE:

emergency_request_vehicle_acknowledge
+ emergency_data_request
+ vehicle_security_system_commands
+ emergency_vehicle_proximity

request_erms_message
This data flow is used to transfer data (through an automated process) between the Provide Vehicle Monitoring and Control function and the Manage Emergency Services function. It contains the following data item which is defined in its own DDE:

emergency_request_vehicle_details
+ vehicle_status_update
+ vehicle_security_system_commands_request

request_for_additional_data
This data flow shall allow for a vehicle to request additional help and give details to an emergency service provider following involvement in an incident. It shall allow the vehicle and driver to carry out a continuous dialogue with an emergency operator to make sure that the emergency service providers have the information the need to be well prepared to handle the incident. This data flow may include a request for an update to the vehicle location.

request_for_emergency_transit_support
This flow contains a request from emergency management for transit management to support an emergency event. It contains requested transit schedules, fares, routes and resources. The data flow consists of the following data items which are defined in their own DDE:

transit_disaster_response_plan

request_for_m_and_c_schedule
This data flow is used within the Manage Maintenance and Construction function and contains a request for information from center personnel about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations.

request_hri_closure_data
This data flow is used by the Monitor HRI Status process to request HRI closure data from the historical data log.

request_images_for_analysis
This data flow is used by processes within the Emergency Services function. It contains the request for surveillance video image data in order to perform imaging matching analysis on that data. This data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ transit_vehicle_location
+ transit_vehicle_identity
+ surveillance_device_type_identity

request_incident_map_display_update
This data flow is used within the Manage Traffic function to request an update of the current digitized map data used as a background for incident data displays. The map data will be provided by a specialist supplier.

request_incident_operations_data
This data flow is used within the Manage Traffic function to request incident data for output to the Traffic Operations Personnel. The request must specify whether the data to be output must include current or predicted incident data, any combination of the two, or defined incident response data.

request_local_current_incidents_data
This data flow is used within the Manage Traffic function to request data about current incidents for use by another TMC. They

will be entered into the local TMC's store of current incidents for use in determining responses. Only details of those incidents that are likely to have an impact outside the local TMC's geographic or jurisdictional area(s) will be sent to the other TMC.

request_local_planned_events_data
This data flow is used within the Manage Traffic function to request data about planned events for use by another TMC. They will be entered into the other TMC's store of planned events for use in determining responses. Only details of those events that are likely to have an impact outside the local TMC's geographic or jurisdictional area(s) will be sent to the other TMC.

request_m_and_c_routing_map_data
This data flow is used within the Manage Maintenance and Construction function to request an update of the current digitized map data used as a background to assist in maintenance and construction vehicle routing. The map data produced as a result of this request will be provided by a specialist supplier.

request_m_and_c_status_display_update
This data flow is used within the Manage Maintenance and Construction function to request an update of the current digitized map data used as a background for displays of data about maintenance and construction activities.

request_m_and_c_tracking_display_update
This data flow is used within the Manage Maintenance and Construction function to request an update of the current digitized map data used as a background for maintenance and construction vehicle locations for tracking purposes. The map data produced as a result of this request will be provided by a specialist supplier.

request_m_and_c_wz_status_display_update
This data flow is used within the Manage Maintenance and Construction function to request an update of the current digitized map data used as a background for displays of data about work zone activities. The map data produced as a result of this request will be provided by a specialist supplier.

request_other_current_incidents_data
This data flow is used within the Manage Traffic function to request data about current incidents from another TMC. They will be entered into the local TMC's store of current incidents for use in determining responses. Although the location of these incidents is outside the TMC's geographic or jurisdictional area(s) they may affect local traffic conditions.

request_other_planned_events_data
This data flow is used within the Manage Traffic function to request data about planned events from another TMC. They will be entered into the local TMC's store of planned events for use in determining responses. Although the location of these events is outside the TMC's geographic or jurisdictional area(s) they may affect local traffic conditions.

request_other_route_segment_data
This data flow is used within the Provide Driver and Traveler Services function to request route segment data for the geographic area(s) not covered by the local route segment data store.

request_other_routes_map_update
This data flow is used within the Provide Driver and Traveler Services function and contains a request which has originated from the ISP operator for an update to the store of digitized map data used by the other routes selection process to be requested from the map provider.

request_other_TMC_data
This data flow is used within the Manage Traffic function to request data from Traffic Management Centers (TMC's) that cover other geographic and/or jurisdictional areas outside that served by the local TMC.

request_planned_events_data
This data flow is used within the Manage Traffic function to request output of data on planned events to traffic operations personnel. The output can be tailored to cover some types of incidents in some locations. The data flow consists of the following data items each of which is defined in its own DDE:

incident_location
+ incident_type

request_pollution_map_display_update
This data flow is used by the Manage Emissions facility within the Manage Traffic function to request an update of the current digitized map data used as a background for data displays. The map data will be provided by a specialist supplier.

request_possible_incidents_data
This data flow is used within the Manage Traffic function to request data currently held in the store of possible incidents. It consists of the following data items each of which is defined in its own DDE :

incident_type
+ incident_request_criteria

request_predefined_traffic_disaster_plan
This data flow is used within the Manage Traffic function. It contains a request for a predefined disaster response and recovery plan.

request_predefined_traffic_evacuation_plan

This data flow is used within the Manage Traffic function. It contains a request for a predefined evacuation plan.

request_predetermined_incident_response_data
This data flow represents a request information regarding a predetermined incident response from the store of defined responses.

request_rail_schedules_data
This data flow contains information required to request scheduled rail operations for a specific locality and time frame.

request_roadside_fare_payment
This data flow is sent from the Manage Transit function to the Provide Electronic Payment Services function to request payment of a transit fare from the roadside, i.e. a transit stop. It consists of the following data items each of which is defined in its own DDE:

transit_fare
+ transit_roadside_fare_collection_identity
+ traveler_roadside_tag_identity

request_route_segment_data
This data flow is used within the Provide Driver and Traveler Services function. It contains an action flag set to find data or delete data, and a list of links for which data must either be found or deleted.

request_route_selection_map_update
This data flow is used within the Provide Driver and Traveler Services function and contains a request which has originated from the ISP operator for an update to the store of digitized map data used by the vehicle routes selection process to be requested from the map provider.

request_sensor_static_data
This data flow is used within the Manage Traffic function and contains a request for the contents of the data store of static data used in the processing of data received from traffic sensors. It consists of a single alphanumeric character which will be set to 's' if the data is to be retrieved and returned to the coordinating process.

request_static_data_for_traffic_control
This data flow is used within the Manage Traffic function to request data contained in the data store of static data for traffic control.

request_traffic_map_display_update
This data flow is used within the Manage Traffic function to request an update of the current digitized map data used as a background for traffic data displays. The map data will be provided by a specialist supplier.

request_traffic_operations_data
This data flow is used within the Manage Traffic function to request traffic data for output to the Traffic Operations Personnel. The request must specify whether the data to be output must include current, long term, archived products, or predicted data, or any combination thereof.

request_transit_map_update
This data flow is used within the Manage Transit function to request an update of the current digitized map data. This data may be used as input to the transit route generation process, or as a background for displays of transit services requested by the transit system operator. It is generated as a result of a specific request for an update from the transit system operator. The map data produced as a result of this request will be provided by a specialist supplier.

request_transit_operator_authentication
This data flow is used by processes within the Manage Transit function. It contains the request to authenticate the transit vehicle operator to the transit vehicle when he attempts to logon to the vehicle. This data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_location
+ transit_vehicle_identity
+ transit_vehicle_operator_identity

request_transit_preplanned_incident_responses
This data flow is used within the Manage Transit function and contains the request for the store management process to output the contents of the store that holds the preplanned responses to certain types of transit incidents.

request_transit_service_external_data
This data flow is used within the Manage Transit function and is the request for the output of the current transit services (routes and schedules) for internal used by processes outside of the Manage Transit function.

request_transit_service_internal_data
This data flow is used within the Manage Transit function and is the request for the output of the current transit services (routes and schedules) for internal used by processes within the function.

request_transit_services_data_for_output
This data flow is used within the Manage Transit function and is the request for the current transit services (routes and schedules). The request is generated as a result of input from the transit system operator, to whom the data will be sent via the interface process.

request_traveler_roadside_image

This data flow is sent from the Provide Electronic Payment Services function to the Manage Transit function. It contains a request for the supply of the image of a traveler who has violated the transit fare payment process at a roadside fare collection point.

request_traveler_service_map_update

This data flow is used within the Provide Driver and Traveler Services function and contains a request to the map provider from the ISP operator for an update to the store of digitized map data used to display traveler service information to the ISP operator.

request_traveler_vehicle_image

This data flow is sent from the Provide Electronic Payment Services function to the Manage Transit function. It contains a request for the supply of the image of a traveler who has violated the transit fare payment process at an on-board vehicle fare collection point.

request_trip_planning_map_update

This data flow is used within the Provide Driver and Traveler Services function and contains a request to the map provider from the ISP operator for an update to the store of digitized map data used to display trip planning information (trip requests and confirmations) to the ISP operator.

request_vehicle_fare_payment

This data flow requests payment processing of one or more transit fare transactions from on-board a transit vehicle. This flow provides for both batch (low value/high usage) fare transactions (e.g. city bus routes) and for high value/low volume, interactive, near real-time transactions (e.g. individualized flexible transit). The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_vehicle_identity
+ transit_vehicle_fare_collection_method
+ list_size{transit_fare
    + traveler_vehicle_tag_identity}

reservation_status

This data flow is used within the ITS functions to show the status of a reservation that is being or has been requested. If the flag is set to true the reservation was accepted, but if set to false, then the reservation was denied. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag

resource_deployment_status

This data flow indicates the availability of the requested traffic management resources and provides current status of their deployment as well as the contact information about the responding agency.

resource_needs_from_scheduler

This data flow is used within the Manage Maintenance and Construction function and contains the resources needed by the function that schedules maintenance and construction activities. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{mcv_vehicle_type
+ m_and_c_materials_type
+ m_and_c_materials_quantity
+ m_and_c_equipment_type
+ m_and_c_equipment_quantity
+ date
+ time}

resource_request

This data flow is used within the Manage Emergency Services function and contains data for the request for traffic management resources to implement special traffic control measures, assist in clean up, etc. It consists of the following data item which is defined in its own DDE.

traffic_resource_request

resource_request_to_personnel

This data flow is used within the Manage Maintenance and Construction function to officially request the use of resources from center personnel. Although primarily requested on behalf of other agencies (such as emergency, traffic, etc.), it could also be used to assist in prioritizing the use of resources within maintenance and construction. This data flow contains a request and a list of the resources requested, including equipment, maintenance and construction vehicles, and materials. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{mcv_vehicle_type
+ m_and_c_materials_type
+ m_and_c_materials_quantity
+ m_and_c_equipment_type
+ m_and_c_equipment_quantity
+ date

+ time}

resource_response_from_personnel

This data flow is used by center personnel to respond to official requests for maintenance and construction resources and contains a list of the resources granted. Although primarily used to respond to requests made on behalf of other agencies (such as emergency, traffic, etc.), it could also be used to assist in prioritizing the use of resources within maintenance and construction. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{mcv_vehicle_type
+ m_and_c_materials_type
+ m_and_c_materials_quantity
+ m_and_c_equipment_type
+ m_and_c_equipment_quantity
+ date
+ time}

response_for_emergency_transit_support

This flow contains a status response from transit management for emergency management. It informs emergency management of how transit is responding to a request for supporting an emergency event. The data flow consists of the following data items which are defined in their own DDE:

transit_emergency_status_report

retained_traveler_guidance_data

This data store is used within the Provide Driver and Traveler Services function and is used to hold data previously input as part of a traveler route request. It is retained to prevent the traveler having to re-input often used data.

retained_vehicle_guidance_data

This data store is used within the Provide Driver and Traveler Services function and is used to hold data previously input as part of a driver route request. It is retained to prevent the driver having to re-input often used data.

retrieved_archive_data

This data flow from the Get Archive Data function contains the data from sources within ITS and outside ITS, i.e. terminators. This data includes the updated meta-data to indicate what formatting or other methods may have been applied to the data as it was imported. This data flow consists of the following items each of which is defined by its own DDE:

formatted_archive_data
+ formatted_archive_data_attributes
+ formatted_archive_catalog

retrieved_incident_media_data

This data flow contains incident data for output to the Media. It contains one or more of the following data items each of which is defined in its own DDE:

current_incidents_data
+ defined_responses_data
+ planned_events_data

retrieved_incident_operations_data

This data flow is used within the Manage Traffic function and contains data for output to either the Traffic Operations Personnel. It contains one or more of the following data items each of which is defined in its own DDE:

current_incidents_data
+ defined_responses_data
+ planned_events_data

retrieved_traffic_media_data

This data flow contains the response to a request for particular data to be retrieved from the stores of current, long term and predictive model data. This data will be used as the basis for traffic information data that is provided to the Media. The data flow consists of the following data items each of which is defined in its own DDE:

current_data_for_retrieval
+ long_term_data_for_retrieval
+ predictive_data_for_retrieval

retrieved_traffic_operations_data

This data flow is used within the Manage Traffic function and contains data for output to either the Traffic Operations Personnel. It contains one or more of the following data items each of which is defined in its own DDE:

long_term_data_for_output
+ current_data_for_output
+ predictive_model_data
+ traffic_archive_data_product
+ link_state_data

reversible_lane_control_device_status_from_highways
This data flow provides the operational status (state of the device, configuration, and fault data) of reversible lane control devices used on highway lanes to the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

reversible_lane_control_device_status_from_roads
This data flow provides the operational status (state of the device, configuration, and fault data) of reversible lane control devices used on surface street lanes to the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

reversible_lane_control_for_highways
This data flow provides control commands for reversible lane equipment on freeways.

reversible_lane_control_for_roads
This data flow provides control commands for reversible lane equipment on surface streets.

reversible_lane_data
This data flow is used within the Manage Traffic function and contains data for reversible lanes. The data flow consists of the following items each of which is defined in its own DDE:

reversible_lane_status
+ reversible_lane_video_images

reversible_lane_restriction_data
This data flow contains lane restriction data (e.g., hours of operation, directionality) for reversible lanes.

reversible_lane_sensor_data
This data flow is used within the Manage Traffic function and contains data from sensors that monitor vehicles in reversible lanes. The data can be used to verify traffic clearance prior to lane reversal and detect wrong-way vehicle incursion into the reversible lanes. It consists of the following data items each of which is defined in its own DDE:

traffic_video_image
+ vehicle_detection_data

reversible_lane_sensor_equip_status_for_m_and_c
This data flow provides the operational status (state of the device, configuration, and fault data) of reversible lane sensor equipment for the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can monitor the configuration, health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

reversible_lane_sensor_status
This data flow provides the operational status (state of the device, configuration, and fault data) of reversible lane sensor equipment for the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

reversible_lane_signal_state_for_freeways
This data flow contains the actual state of operation of a reversible lane signal used to pass instructions to drivers and travelers on the highway network served by the function. The form of indication shown to drivers will depend on the type of indicator.

reversible_lane_signal_state_for_roads
This data flow contains the actual state of operation of a reversible lane signal used to pass instructions to drivers and travelers on the roadway network served by the function. The form of indication shown to drivers will depend on the type of indicator.

reversible_lane_signal_states
This data flow contains the actual state of operation of a reversible lane signal used to pass instructions to drivers and travelers on the road or highway network served by the function. The form of indication shown to drivers will depend on the type of indicator. The data flow consists of the following data items each of which is defined in its own DDE:

reversible_lane_signal_state_for_roads
+ reversible_lane_signal_state_for_freeways

reversible_lane_status
This data flow is used within the Manage Traffic function and reports the status of a reversible lane. The data flow reports the current direction of the reversible lane (i.e. northbound or southbound).

reversible_lane_video_images
This data flow is used within the Manage Traffic function. It contains video images of the reversible lanes. It consists of the following data item which is defined in its own DDE:

incident_video_image

ride_segments
This data flow is used within the Manage Transit function and defines the transit route segment(s) for which payment is being or has been provided or for which prices have been requested or supplied. It consists of the following data items each of which is defined in its own DDE:

list_size{transit_route_segment_number}

rideshare_confirmation
This data flow is used within the Provide Driver and Traveler Services function to show that a traveler requested rideshare has been confirmed of not. It consists of the following data items each of which is defined in its own DDE:

reservation_status
+ traveler_identity

rideshare_confirmation_data
This data flow is used within the Provide Driver and Traveler Services function and contains data about confirmed rideshare requests. It consists of the following data items each of which is defined in its own DDE:

reservation_status
+ rideshare_selection_number

rideshare_cost
This data flow defines the cost of a single use of the ridesharing services.

rideshare_data
This store is used within the Provide Driver and Traveler Services function to hold data about available rideshare routes and travelers. It consists of the following data items each of which is defined in its own DDE:

rideshare_eligibility_data
+ rideshare_confirmation_data
+ rideshare_details

rideshare_details
This data flow is used within the Provide Driver and Traveler Services function and contains a list of potential ridesharing matches for output to the traveler. This data will provide information on the other participants in the proposed rideshare, pick-up and drop-off points, etc.

rideshare_eligibility_data
This data flow is used within the Provide Driver and Traveler Services function to identify potential rideshare participants and to determine their eligibility.

rideshare_ineligible_status_notification
This data flow is used within the Provide Driver and Traveler Services function and is used to indicate that a traveler who wishes to participate in a rideshare has been found to be ineligible.

rideshare_information
This data flow is used within the Provide Driver and Traveler Services function to transfer information about rideshare requests, rideshare routes and travelers, and requests for rideshare as part of a traveler's proposed trip request. It contains the following data items each of which is defined in its own DDE:

rideshare_confirmation
+ rideshare_response

rideshare_payment_confirmation
This data flow is used by the Provide Electronic Payment Services function to confirm to the Provide Driver and Traveler Services function that payment for a traveler's request and confirmation of a successful rideshare match has been made.

rideshare_payment_request
This data flow is used by the Provide Driver and Traveler Services function to request that the Provide Electronic Payment Services function carries out the transactions needed for payment of charges necessary for a traveler to make use of ridesharing services. It consists of the following data items each of which is define in its own DDE:

credit_identity
+ rideshare_cost

rideshare_request
This data flow is used within the Provide Driver and Traveler Services function to request a rideshare as part of a traveler's proposed trip request. It consists of the following data items each of which is defined in its own DDE:

traveler_rideshare_data
+ traveler_rideshare_preferences
+ traveler_rideshare_constraints

rideshare_request_and_confirmation
This data flow is used within the Provide Driver and Traveler Services function to transfer information about rideshare requests. It contains the following data items each of which is defined in its own DDE:

traveler_rideshare_confirmation
+ traveler_rideshare_request

rideshare_request_from_eligible_traveler
This data flow is used within the Provide Driver and Traveler Services function. It contains data about a ride request that has been screened to ensure the traveler's eligibility for use of the service. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ traveler_rideshare_data
+ traveler_rideshare_preferences
+ traveler_rideshare_constraints

rideshare_response
This data flow is used within the Provide Driver and Traveler Services function to provide the response to a traveler's rideshare request. It contains the following data items each of which is defined in its own DDE:

rideshare_details
+ rideshare_selection_number
+ traveler_identity

rideshare_selection
This data flow is used within the Provide Driver and Traveler Services function and contains details of the rideshare that has been prepared in response to a traveler's rideshare request. It consists the following data items each of which is defined in its own DDE:

rideshare_details
+ rideshare_selection_number
+ traveler_identity

rideshare_selection_number
This data flow is used within the Provide Driver and Traveler Services function to provide the identification number for a rideshare selection that has been made in response to a traveler's request. This number is used to identify a rideshare selection in all subsequent transactions.

road_conditions
This data flow contains current and forecasted road conditions. Road conditions includes surface or subsurface temperature, state (e.g. dry, wet, ice, snow, flooded), and residual chemical factors of the road surface as well as visibility near the road surface. This data is provided by road segment. It consists of the following data items each of which is defined in its own DDE:

list_size{link_identity
+ road_segment_conditions}

road_control_devices
This data flow includes information about each device used to output traffic management commands to vehicle drivers at road junctions, including those that control vehicles at multimodal and railroad grade crossings. Data for devices at highway entry ramps is provided separately. This data flow consists of the following data items each of which is defined in its own DDE:

crossing_equipment_data_for_roads
+ hri_data_for_roads
+ intersection_equipment_data
+ pedestrian_equipment_data

road_network
This data flow comprises data about each segment in the road (surface street) network and the way in which they fit together, i.e. which segment is joined to which, both upstream and downstream, plus identification of those links that interface to the highway network. It consists of the following data items each of which is defined in its own DDE:

list_size

+ list_size{route_segment_downstream_identity
    + route_segment_end_point
    + route_segment_identity
    + route_segment_start_point
    + route_segment_upstream_identity
+ turning_movements}

road_network_info_for_transit

This data flow is used in the Manage Transit function to send details of road and weather conditions, work zone information, asset restrictions, and other road network status from the process that manages transit vehicle operations data to the process that determines transit vehicle schedule deviations. It contains the following data items each of which is defined in its own DDE:

fstws-surface_trans_weather_observations
+ fstws-surface_trans_weather_forecasts
+ fws-current_weather_observations
+ fws-weather_forecasts
+ work_zone_info_for_transit
+ asset_restrictions_for_transit
+ road_weather_info_for_transit
+ traffic_data_for_transit
+ transportation_information_for_transit_operations

road_network_info_from_traffic

This data flow is sent from the Manage Traffic function to the Manage Maintenance and Construction function and is used to send details of current and forecasted traffic information, road and weather conditions, other road network status, and roadway network data. It contains the following data items each of which is defined in its own DDE:

link_state_data
+ roadway_environment_conditions
+ predicted_road_network_data
+ current_data_for_output
+ network_and_device_inventory

road_network_info_to_mcv

This data flow is used within the Manage Maintenance and Construction function and contains a view of the road network for the maintenance and construction vehicle systems. This information includes travel times, route usage, and incidents and incident response, and environmental information. The data flow consists of the following item which is defined in its own DDE:

m_and_c_view_of_road_network

road_segment_conditions

This data flow contains current and forecasted road conditions for a single road segment. Road conditions includes temperature, state (e.g. dry, wet, ice, snow, flooded), and residual chemical factors of the road surface as well as visibility near the road surface.

road_segment_location

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveler Services function and contains the geographic location of the start and end points of the road segment(s) to which an indicator displays its information. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{route_segment_end_point
    + route_segment_identity
    + route_segment_start_point}

road_segment_weather_conditions

This data flow contains current and forecasted road weather conditions for a single road segment. Road weather conditions includes temperature, humidity, precipitation, as well as wind conditions near the road surface.

road_user_dynamic_warning

This data flow from the Process Road User Protection contains warning information concerning the presence of vehicles in close proximity of non-vehicle users such as pedestrians and bicyclists.

road_user_protection_data_for_traffic

This data flow is used within the Manage Traffic function. It contains processed road user surveillance data obtained from sensors within the road (surface street) and highway network served by the TMC. The data is used to determine the presence of pedestrians or bicyclists near the roadway for use in advanced mixed use warning systems.

road_user_protection_device_configuration

This data flow provides device configuration information for devices used for road user protection.

road_user_protection_device_status

This data flow provides the operational status (state of the device, configuration, and fault data) of road user protection systems to the Manage Traffic function.

road_user_protection_video_for_traffic
This data flow contains the output of imaging sensors used in advanced mixed use warning systems.

road_user_protection_warning_for_display
This data flow provides road user protection warning information meant to alert a driver or non vehicular user via display such as dynamic message sign.

road_user_protection_warning_for_vehicle
This data flow provides road user protection warning information meant to alert a driver via in-vehicle signage.

road_user_warning_speed_conditions
This data flow provides speed limit adjustments based on road user protection sensors.

road_weather_conditions
This data flow contains current and forecasted road weather conditions. Road weather conditions includes temperature, humidity, precipitation, as well as wind conditions near the road surface. This data is provided by road segment. It consists of the following data items each of which is defined in its own DDE:

list_size{link_identity
+ road_segment_weather_conditions}

road_weather_info_for_emergency
This data flow contains environmental and road weather information that has been formatted for distribution to the manage emergency services function. The data may be filtered or aggregated prior to this formatting. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

road_weather_info_for_isp
This data flow contains environmental and road weather information that has been formatted for distribution to the provide driver and traveler services function. The data may be filtered or aggregated prior to this formatting. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

road_weather_info_for_traffic
This data flow contains environmental and road weather information that has been formatted for distribution to the manage traffic function. The data may be filtered or aggregated prior to this formatting. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

road_weather_info_for_transit
This data flow contains environmental and road weather information that has been formatted for distribution to the manage transit function. The data may be filtered or aggregated prior to this formatting. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

roadside_archive_catalog
This data flow is used to provide the description of the data contained in the collection of roadside data that has been stored and made available for the Manage Archived Data function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g. time range of entries, number of entries; or sample data products.

roadside_archive_catalog_request
This data flow from the Manage Archive Data function contains the request for a catalog of the data held by the Manage Traffic function. The request for a catalog may include the description of types of data the archive is interested in or a timeframe over which the requested information may be available.

roadside_archive_control
This data flow from the Manage Archive Data function contains the request for data collected and stored by the Manage Traffic function. The request can be a request for a catalog of the data held by the function or a request for the data itself. This data flow consists of the following data items each of which is defined in its own DDE:

roadside_archive_catalog_request
+ roadside_archive_data_request

roadside_archive_data
This data flow is sent from the Manage Traffic function to the Manage Archive Data function. It contains the roadside archive data stored in the Manage Traffic function along with the meta data describing the data as collected from field equipment. It

consists of sensor data which includes the status of the sensors and detection of sensor faults. This data flow is made up of the following items each of which is defined in its own DDE:

roadside_archive_catalog
+ roadside_data_for_archive

roadside_archive_data_request
This data flow from the Manage Archive Data function contains the request for the data held by the Manage Traffic function. The request for data may include the description of the data required or a timeframe over which the requested information may be available.

roadside_conditions
This data flow is used within the Manage Traffic function and contains information about local road and highway conditions, i.e. snow, ice, rain, fog, other forms of precipitation (earth, sand, petroleum, chemicals, etc.), flooding. The data flow consists of the following data items each of which is defined in its own DDE:

link_list
+ 1{link_conditions}list_size

roadside_crew_warning_given
This data flow contains a time-stamped indication that an intrusion warning was generated via a roadside device, along with details of the warning (to whom was it sent or how was it sent).

roadside_data_archive
This data store is used within the Manage Traffic function to hold data that is to be archived by the Manage Archived Data function. The data store contains the following data items each of which is defined in its own DDE:

traffic_sensor_data_archive_input
+ traffic_sensor_data_attributes
+ environmental_sensor_data_archive_input
+ environmental_sensor_data_attributes

roadside_data_for_archive
This data flow is sent from the Manage Traffic to the Manage Archive Data function. It is used to provide detailed data collected from the roadside. This data flow consists the following items each of which is defined in its own DDE:

traffic_sensor_data_archive_input
+ traffic_sensor_data_attributes
+ environmental_sensor_data_archive_input
+ environmental_sensor_data_attributes

roadside_device_control_to_work_zone
This DFD flow represents the data flows from Provide Roadside Control Facilities to Control Work Zone Activity and includes barrier, DMS and HAR status information. It consists of the following items each of which is defined in its own DDE:

barrier_system_status_to_mcv
barrier_system_status_to_m_and_c
+ dms_status_for_m_and_c
+ har_status_for_m_and_c
+ dms_status_for_mcv

roadside_device_fault
This data flow indicates a fault has occurred in a field device (traffic signal controller, ramp meter, sensor, etc.). A code may indicate the type of fault that has occurred depending on the type of device and its configuration.

roadside_device_status
This data flow is used to collect device status data, including fault information and current operational state, from roadside devices such as traffic and environmental probe field equipment, CCTVs, in-vehicle signing equipment, automated roadway treatment systems, barrier and safeguard systems, etc., and from devices located onboard vehicles, such as intrusion alert devices.

roadside_passenger_data_timeframe
Indicates the time frame over which the data has been collected.

roadside_safety_data_to_vehicle
This data flow provides vehicles with data concerning other vehicles in the vicinity and potential hazards such as flooding, wrong-way vehicles, and other conditions.

roadway_characteristics
This data flow is sent from the traffic operations personnel to the Manage Traffic function. It contains analog information which includes shoulder widths, pavement types, and other general information pertaining to standard characteristics. It consists of the following data items each of which is defined in its own DDE:

shoulder_width
+ median_type

+ pavement_type
+ number_of_lanes
+ link_speed_limit

roadway_closure_from_emergency
This data flow provides details of roadway closures initiated by emergency services due to weather, incidents, or other roadway hazards.

roadway_closures
This data flow contains the current status of links in the roadway system. Included are both links that are currently not available for use on the roadway system and those links that remain open. The data flow consists of the following data item which is defined in its own DDE:

link_status

roadway_control_request_for_detours
This data flow contains request for roadway controls to provide detour routes in support of emergency operations during a disaster. The request could be for a long term or short term detour. It might also include a request to remove vehicle restrictions such as HOV on facilities.

roadway_control_response_for_detours
This data flow contains response from roadway controls on the status of setting up and providing detour routes in support of emergency operations during a disaster.

roadway_detours_and_closures
This data flow contains the list of roadway closures and detour routes in support of disaster response and recovery efforts. The data flow consists of the following data items each of which is defined in their own DDE:

highway_closures
+ roadway_closures

roadway_detours_and_closures_for_em
This data flow contains the list of roadway closures and detours for use by the emergency management function during a disaster or other emergency. Emergency Management can use this information to update its efforts to help support the disaster response and recovery efforts. The data flow consists of the following data item which is defined in its own DDE:

roadway_detours_and_closures

roadway_detours_and_closures_for_em_response
This data flow is sent from the Manage Traffic function to the Manage Emergency Services function and contains the list of roadway closures and detours for use in responding to emergency situations. The data flow consists of the following data item which is defined in its own DDE:

roadway_detours_and_closures

roadway_detours_and_closures_for_isp
This data flow contains the list of roadway closures and detours for use by information service providers during a disaster or other emergency. The data flow consists of the following data item which is defined in its own DDE:

roadway_detours_and_closures

roadway_detours_and_closures_for_m_and_c
This data flow contains the list of roadway closures and detours for use by the Maintenance and Construction during a disaster or other emergency. Maintenance can use this information to update schedules, work plans, etc., to help support the disaster response and recovery efforts. The data flow consists of the following data item which is defined in its own DDE:

roadway_detours_and_closures

roadway_detours_and_closures_for_traffic
This data flow contains the list of roadway closures and detour routes in support of disaster response and recovery efforts. The data flow consists of the following data item which is defined in its own DDE:

roadway_detours_and_closures

roadway_detours_and_closures_for_transit
This data flow contains the list of roadway closures and detours for use by the Manage Transit function during a disaster or other emergency. Transit Management can use this information to update schedules, routes, etc., to help support the disaster response and recovery efforts. The data flow consists of the following data item which is defined in its own DDE:

roadway_detours_and_closures

roadway_environment_conditions
This data flow contains processed environment sensor information which provides a summary of environment conditions referenced to a link. It consists of the following items each of which is defined in it own DDE:

link_list
+1{link_environment_conditions}link_list

roadway_info_alert_data
This data flow is sent to the Manage Traffic function to provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be broadcast using dynamic message signs (DMS), highway advisory radio (HAR), or in-vehicle signage. It consists of the following data items each of which is defined in its own DDE:

wide_area_alert_notification_for_traffic

roadway_info_barrier_activated_from_traffic
This data flow contains the actual data from which instructions to the driver and traveler can be produced by indicators at dynamic message signs (DMS), highway advisory radios (HAR), or in-vehicle signage at the roadside to display the status of a barrier system (e.g. open, closed). It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{indicator_identity
+ dms_advisory_text
+ lane_dms_controls}

roadway_info_for_signage
This data flow is used within the Output Control Data process to provide the information to be output to drivers using in-vehicle signage. It consists of the following data items each of which is defined in its own DDE:

indicator_sign_control_data
+ wide_area_alert_notification_for_traffic
+ hri_guidance_for_roadway_info
+ evacuation_area
+ evacuation_schedule
+ current_incident_details
+ planned_event_details
+ traffic_data_for_signage

roadway_info_operator_input
This data flow is used within the Manage Traffic function and contains Highway Advisory Radio (HAR) data and Dynamic Message Sign (DMS) data from traffic operations personnel. It consists of the following data items each of which is defined in its own DDE:

har_data
+ dms_data
+ dms_control_data

roadway_info_operator_status
This data flow is used within the Manage Traffic function to report to the traffic operations personnel the status of Highway Advisory Radios (HARs) and Dynamic Message Sign status for DMS operating at the roadside in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

dms_status
+ roadway_information_incident_updates
+ har_status

roadway_info_safeguard_activated_from_traffic
This data flow contains the actual data from which instructions to the driver and traveler can be produced by indicators at dynamic message signs (DMS), highway advisory radios (HAR), or in-vehicle signage at the roadside to display the status of the safeguard system (e.g. ongoing, just completed, about to begin). It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{indicator_identity
+ dms_advisory_text
+ lane_dms_controls}

roadway_info_traffic_data
This data flow is used within the Manage Traffic function. It contains traffic flow, occupancy, speed and other data some of which can be used as part of the data that is broadcast by roadside processes for use by dynamic message signs (DMS), highway advisory radios (HAR), or in-vehicle signage equipment. The data flow consists of the following data items each of which is defined in its own DDE:

link_state_data

roadway_info_traffic_metering_data
This data flow is used within the Manage Traffic function and contains information to be distributed to drivers approaching a traffic meter (e.g., ramp meter), such as advance warning of the meter, its operational status (whether it is currently on or not, how many cars per green are allowed, etc.), lane usage at the meter (including a bypass lane for HOVs) and existing queue at the meter.

roadway_info_variable_speed_limit_data

This data flow from the Manage Vehicle Speed function to the Output Control Data function provides the speed limit information for use in device control. This is the safe speed for vehicles based on current traffic conditions, environmental conditions, and local policy, and safe speed thresholds.

roadway_information_data

This data flow is used within the Manage Traffic function and contains Highway Advisory Radio (HAR) data and Dynamic Message Sign (DMS) data. It consists of the following data items each of which is defined in its own DDE:

har_data
+ dms_data
+ dms_control_data

roadway_information_data_to_traffic

This data flow is used to request the Manage Traffic function to post information concerning an emergency via dynamic message signs (DMS) or highway advisory radio (HAR).

roadway_information_evacuation_data

This flow contains information regarding the evacuation for distribution to the roadway. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule

roadway_information_incident_updates

This data flow is used within the Manage Traffic function and contains data about current incidents and the text strings of information concerning incidents that are to be output to drivers and pedestrians. This output will be achieved using a form of indicators such as dynamic message signs (DMS), highway advisory radio (HAR), or in-vehicle signage. The data flow consists of the following data items each of which is defined in its own DDE:

current_incident_details
+ list_size
+ list_size{indicator_identity
    + dms_advisory_text}

roadway_information_status

This data flow contains the Highway Advisory Radio status for HARs and Dynamic Message Sign status for DMS operating at the roadside in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

dms_status
+ roadway_information_incident_updates
+ har_status

roadway_information_status_from_traffic

This data flow is used to provide the status from the Manage Traffic function concerning the posting of information to travelers concerning an emergency via dynamic message signs (DMS) or highway advisory radio (HAR).

roadway_m_and_c_device_data_to_traffic

This DFD flow represents the data flows from Manage Roadway M&C Activities to Provide Device Control and includes roadway device status and roadway maintenance information to be displayed. It consists of the following items each of which is defined in its own DDE:

field_equip_maint_status
+ dms_auto_treat_data_from_maint
+ dms_auto_treat_data_from_roadway
+ t_other_rw_env_sensor_control_by_auto_treat_device
+ t_other_rw_dms_auto_treat_data_from_roadway

roadway_m_and_c_to_traffic

This DFD flow represents the data flows from Manage Roadway M&C Activities to Provide Traffic Surveillance and includes information about roadway maintenance activities and sensor control. It consists of the following items each of which is defined in its own DDE:

roadway_maint_status_for_traffic
+ env_sensor_control_by_auto_treat_device
+ infrastructure_sensor_control_from_m_and_c
+ asset_restrictions_for_traffic

roadway_maint_action_req_from_emerg

This data flow is sent by the Manage Emergency Services function to the Manage Maintenance and Construction function and contains a request for action. This includes a request for hazard removal, field equipment repair, and other roadway maintenance.

roadway_maint_action_req_from_traffic
This data flow is sent by the Manage Traffic function to the Manage Maintenance and Construction function and contains a request for action. This includes a request for hazard removal, field equipment repair, and other roadway maintenance.

roadway_maint_plan
This data flow consists of the selected roadway maintenance plan, including the type of activity to be performed (field equipment repair, grass-cutting, etc.), schedule, etc. and is provided to assist the maintenance and construction activities scheduling function.

roadway_maint_status_for_emerg
This data flow is sent from the Manage Maintenance and Construction function to the Manage Emergency Services function and contains information summarizing the current roadway maintenance activities. This also includes maintenance fleet operations affecting the road network such as winter maintenance (snow plow schedules and status). The data flow consists of the following data item which is defined in its own DDE:

current_roadway_maintenance_status

roadway_maint_status_for_info_provider
This data flow is sent from the Manage Maintenance and Construction function to the Provide Driver and Traveler Services function and contains information summarizing the current roadway maintenance activities. This also includes maintenance fleet operations affecting the road network such as winter maintenance (snow plow schedules and status). The data flow consists of the following data item which is defined in its own DDE:

current_roadway_maintenance_status

roadway_maint_status_for_traffic
This data flow is sent from the Manage Maintenance and Construction function to the Manage Traffic function and contains information summarizing the current roadway maintenance activities. This also includes maintenance fleet operations affecting the road network such as winter maintenance (snow plow schedules and status). The data flow consists of the following data item which is defined in its own DDE:

current_roadway_maintenance_status

roadway_maint_status_for_transit
This data flow is sent from the Manage Maintenance and Construction function to the Manage Transit function and contains information summarizing the current roadway maintenance activities. This also includes maintenance fleet operations affecting the road network such as winter maintenance (snow plow schedules and status). The data flow consists of the following data item which is defined in its own DDE:

current_roadway_maintenance_status

roadway_status
This data flow represents the current status of the roadway at an HRI and includes pertinent information relative to approaching trains. It is used to monitor the overall status of the HRI by the Monitor HRI Status process.

roadway_traffic_conditions
This data flow contains sensor information which has been processed to provide traffic conditions for a link. It consists of the following items each of which is defined in it own DDE:

link_list + 1{link_traffic_conditions}link_list

roadway_treatment_system_control
This data flow is used within the Manage Maintenance and Construction function and contains control information to remotely control automated field devices along the roadway that treat the road surface (anti-icing, de-icing, etc.) and the environmental sensors that indicate when activation of those devices is required. The data flow consists of the following data items each of which is defined in its own DDE:

auto_treatment_device_control
+ env_sensor_control_by_roadway_treatment_device

roadway_treatment_system_status
This data flow contains the operational status of automated treatment devices located at the roadway, including fault information and records of equipment activation. By monitoring this data flow, the receiving processes can assess the health and current status of field equipment and track the occurrences of automated treatment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status
+ auto_treatment_activation_data}

roadway_warning_device_status
This data flow is used within the Manage Traffic function to report the operational status (state of the device, configuration, and fault data) of roadway warning systems. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

roadway_warning_equip_status_for_m_and_c
This data flow provides the operational status (state of the device, configuration, and fault data) of a roadway warning system to the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can assess the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

roadway_warning_info
This data flow contains warnings for drivers concerning potential roadway hazards, e.g., roadway weather conditions, road surface conditions, traffic congestion and queues, obstacles in the roadway.

roadway_warning_system_control
This data flow provides configuration and control commands for roadway warning systems along the roadside. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{station_id
+ device_identity
+ roadway_warning_system_control_request}

roadway_warning_system_control_from_operator
This data flow provides control commands from the Traffic Operations Personnel interface for roadway warning equipment at the roadway, including the geographic area involved and parameters for hazard detection and display of roadway warnings.

roadway_warning_system_control_request
This data flow is a request for activation or deactivation of a roadway warning system, and any other supportive control and configuration data.

roadway_warning_system_status
This data flow is used to report the status of a roadway warning system. By monitoring this data flow, the receiving process can determine whether obstacles have been detected in the roadway, if the warnings were sent properly, or whether any additional information is required.

roadway_warning_system_status_to_operator
This data flow is used within the Manage Traffic function to report to the traffic operations personnel the status of Roadway Warning systems operating at the roadside in the geographic and/or jurisdictional area(s) served by the function.

route
This data flow is used within the Provide Driver and Traveler Services function and contains details of a route. This will have been produced to fit the origin, destination, preferences and constraints requirements provided by a traveler through the trip request data. The route segment(s) will be in sets, one for a primary route (the nearest fit to the traveler's requirements), plus one or more alternates that may give a better modal split, or improved journey time, etc. There may be one or many route segments depending on the length of the route. The data flow consists of the following items each of which is defined in its own DDE:

route_start_time
+ route_statistics
+ route_cost
+ route_list
+ route_segment_number{route_segment}

route_cost
This data item is used within the Provide Driver and Traveler Services function and contains the cost of using a particular route. This is made up of some or all of such things as tolls, fares, port charges, plus the cost of commercial vehicle credential filing and tax payments.

route_data
This data flow is used to transfer data between the Provide Driver and Traveler Services function and the Manage Traffic function. It contains a wide variety of data covering road network (including parking lot information) use by traffic probe vehicles, traveler information for traffic operations, and requests for current traffic data which can be presented to travelers, as well as a traveler profile for subscription of data. The data flow consists of the following data items each of which is defined in its own DDE:

current_other_routes_use
+ current_road_network_use
+ current_transit_routes_use

+ logged_special_vehicle_route
+ parking_lot_static_information_request_by_isp
+ parking_lot_dynamic_information_request_by_isp
+ special_vehicle_priority_routing
+ traffic_probe_info_from_isp_for_traffic
+ route_segment_use_prediction
+ parking_lot_charge_details
+ toll_price_details
+ transit_fare_details
+ transportation_information_for_traffic_operations
+ vehicle_guidance_probe_data
+ vehicle_guidance_probe_data_for_archive

route_identity

This data flow contains the identity of a route that is to be used for either on-line vehicle or traveler guidance. The data is for internal use within the function and identifies the route when the driver or traveler subsequently accepts it for use.

route_list

This data flow contains a list of the number of route segments in each route that is being provided to a traveler. The primary route will be that which most closely fits the traveler's requirements, while the others will be alternates that may give such things as improved journey time, shorter distance, lower cost, different modal split, etc. The data flow consists of the following data item which is defined in its own DDE:

route_segment_number

route_monitoring_parameters

This data flow contains parameters against which a vehicle's route is monitored. The parameters are used to setup acceptable route deviation limits, which can be influenced by the type of vehicle (i.e. HAZMAT) and its current location (i.e. urban vs. rural).

route_point

This data flow is used within the Provide Driver and Traveler Services function. It defines a point that may be on the route that is provided in response to a trip request, or it may be part of the trip specification produced by the traveler as the trip request. In either case it may be the origin, destination, or an intermediate point which the traveler wishes to pass through, or where the trip planning facility has decided that it is necessary to change modes.

route_restrictions_for_isp

This data flow contains information about road segments and areas (surrounded by road segments) that do not allow the transport of security sensitive hazmat cargoes or may indicate other restrictions (such as height or weight limits). These restrictions are intended to be used by ISPs in preparing routes for commercial vehicles. The data flow consists of the following data items each of which is defined in its own DDE:

hazmat_route_restrictions
+ current_asset_restrictions

route_segment

This data flow is used within the Provide Driver and Traveler Services function and forms the basic building block for a route. It consists of the following items of data each of which is defined in its own DDE:

route_segment_data
+ route_segment_identity
+ route_segment_mode

route_segment_commercial_details

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Commercial Vehicles function. It contains data about each of the route segments that have been included in a commercial vehicle route. The data flow consists of the following data items each of which is defined in its own DDE:

route_segment_estimated_condition
+ route_segment_predicted_weather
+ route_segment_end_point
+ route_segment_estimated_travel_time
+ route_segment_start_point

route_segment_data

This data flow is used within the Provide Driver and Traveler Services function and contains information about a route segment. It consists of the following items of data each of which is defined in its own DDE:

route_segment_estimated_condition
+ route_segment_predicted_weather
+ route_segment_end_point
+ route_segment_start_point
+ route_segment_description
+ route_segment_estimated_arrival_time
+ route_segment_estimated_travel_time

+ route_segment_report_position_points

route_segment_description
This data flow is used within the Provide Driver and Traveler Services function and contains a description of the physical details for the entire route segment. This data is used to provide information from which guidance can be produced in a form which is understood by the driver, e.g. lane selection, right/left turns, etc.

route_segment_details
This data store contains data about the route segments both within and outside the control of the local Manage Traffic function, with which regular contact is maintained. The store consists of the following data items each of which is defined in its own DDE:

list_size{route_segment_stored_details}

route_segment_details_updated
this data flow is used within the Provide Driver and Traveler Services function to indicate that the store of route segment details has been updated.

route_segment_downstream_identity
This data flow provides the identity of the route segment that is immediately downstream of the route segment with which the data flow is associated. This may be another route segment of the same type (highway or road), or of the alternative type (road or highway) where there is an interface to the other network. The data flow consists of the following data item which is defined in its own DDE:

route_segment_identity

route_segment_end_point
This data flow is used within the Provide Driver and Traveler Services function and the Manage Traffic function. It contains the location of the end of a route segment and consists of the following data item which is defined in its own DDE:

location_identity

route_segment_estimated_arrival_time
This data flow contains the estimated time at which the route segment end point will be reached.

route_segment_estimated_condition
This data flow contains the traffic conditions expected on the route segment at the time at which it will be used.

route_segment_estimated_travel_time
This data flow contains the estimated time it will take a vehicle to travel the route segment taking account of the expected conditions defined in other data.

route_segment_guided_travelers
This data flow contains the number of travelers being guided along a route segment in one minute of real time. This data only applies to non-vehicle route segments and those not provided by transit services. The travelers may not actually be on the segment at the time the data is used, but will have it included in their current personal guidance data.

route_segment_guided_vehicles
This data flow contains the number of vehicles being guided along a route segment in one minute of real time. The vehicles may not actually be on the segment at the time the data is used, but will have it included in their current route guidance data. This data flow will only apply to those route segments that are used by road vehicles other than transit vehicles.

route_segment_identity
This data flow contains the identity number of a route segment. A link may not be the same physical entity as a surface street or highway link (defined elsewhere), but in some cases they could be the same. The data flow consists of the following data items each of which is defined in its own DDE:

unit_number
+ route_segment_type
+ location_identity

route_segment_incident_data
This data flow is used within the Provide Driver and Traveler Services function. It contains data about a predicted incident on a route segment. The data is provided by the Manage Incidents facility in the Manage Traffic function. The data flow consists of the following data items each of which is defined in its own DDE:

incident_type
+ incident_severity
+ incident_description
+ incident_traffic_impact

route_segment_journey_time
This data flow contains the average route segment journey time calculated from data being provided by guided vehicles. These vehicle are acting as probes in the road network by reporting their position to request fresh (updated) guidance at the beginning of each new route segment on their current route.

route_segment_journey_time_from_tolls

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and traveler Services function. It contains the smoothed average vehicle journey times for the route segment between two toll collection points, obtained from the passing times of those vehicles equipped for electronic toll collection.

route_segment_mode

This data flow contains the mode that has been selected for use within the route segment. The choice of mode is made as part of the trip planning process using one of those listed in the 'modes' data flow. Only one mode can be used in any single route segment.

route_segment_number

This data flow is used within the Provide Driver and Traveler Services function and contains the number of segments in a route that is being provided in response to a trip request from a traveler.

route_segment_occupancy_predictions

This data flow contains output from the predictive model process showing predictions of the occupancy for route segments on the road and highway network served by the Manage Traffic function. This occupancy is represents a range from no vehicles present to the situation in which vehicles are not moving.

route_segment_pollution_data

This data flow is used within the Provide Driver and Traveler Services function. It contains data about the pollution levels that are present in the geographic area which is occupied by the route segment. This data will have been obtained from sensors that are deployed and monitored by the Manage Emissions facility within the Manage Traffic function. The data flow consists of the following data items each of which is defined in its own DDE:

current_ozone_pollution
+ current_nitrogen_oxides_pollution
+ current_sulfur_dioxide_pollution
+ current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution
+ current_particulate_pollution
+ current_roadside_pollution_location

route_segment_predicted_weather

This data flow contains the weather conditions expected on the road segment at the time at which it will be used.

route_segment_queue_delay_predictions

This data flow contains output showing predictions of the delay(s) due to traffic queues for route segments on the road and highway network. This delay is the additional time that a vehicle will take to move from the start of a route segment to its end, above that which it would need in totally free flow conditions. The queues may be caused by very high traffic flows such that the traffic cannot all physically fit into certain part(s) of the roads and highways.

route_segment_report_position_points

This data flow is used within the Provide Driver and Traveler Services function and contains a list of any points other than those at the route segment start and end where the vehicle's position is to be reported. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{route_segment_way_point}

route_segment_speed_predictions

This data flow is used within the Manage Traffic function and is also sent by that function to the Manage Transit and Provide Driver and Traveler Services function. It contains output from the predictive model process showing predictions of the vehicle speed for route segments on the road and highway network served by the Manage Traffic function. It consists of the following item which is defined in its own DDE:

vehicle_speed

route_segment_start_point

This data flow is used within the Provide Driver and Traveler Services function and the Manage Traffic function. It contains the location of the start of a route segment and consists of the following data item which is defined in its own DDE:

location_identity

route_segment_stored_details

This data flow is used within the Provide Driver and Traveler Services function. It contains data for each 'route_segment' such as the current journey time, either obtained from position reports input by probe vehicles, i.e. those which are reporting their current position regardless of whether they are guided or not, or calculated from data produced as part of the adaptive control strategy process, data from the predictive model, and pollution data. The data flow consists of the following data items each of which is defined in its own DDE:

route_segment_identity
+ route_segment_incident_data
+ route_segment_journey_time

+ route_segment_occupancy_predictions
+ route_segment_pollution_data
+ route_segment_queue_delay_predictions
+ route_segment_use_prediction
+ route_segment_volume_delay_predictions
+ route_segment_downstream_identity
+ route_segment_end_point
+ route_segment_start_point
+ route_segment_upstream_identity
+ turning_movements
+ road_control_devices
+ highway_control_devices

route_segment_total_number

This data flow is used define the total number of route segments in the road (surface street) and highway network served by the Manage Traffic function. This may be different from that served by the Provide Driver and Traveler Services function, and in this instance is used to define the number of route segments for which probe vehicle data is being provided to the Manage Traffic function, or the total number of route segments used by non-vehicle modes (walking, cycling, etc.) for which journey times are available.

route_segment_travel_time

This data flow contains the average route segment travel time calculated from data being provided by guided vehicles or from vehicles equipped as traffic probes.

route_segment_type

This data flow contains the definition of the type of route segment which will depend on the types of use it will support. The data flow may describe but not be limited to messages such as any type of vehicle, commercial vehicles only, transit vehicles only, commercial and transit vehicles, private cars and vans only, bicycles only, all pedestrians, no vehicles, disabled pedestrians, road route segment, and highway route segment.

route_segment_upstream_identity

This data flow provides the identity of the route segment that is immediately upstream of the route segment with which the data flow is associated. This may be another route segment of the same type (road or highway), or of the alternative type (highway or road) where there is an interface to the other network. The data flow consists of the following data item which is defined in its own DDE:

route_segment_identity

route_segment_use_prediction

This data flow is used within the Provide Driver and Traveler Services function. It contains data about the number of guided vehicles that will be using a route segment over a set of time periods. The data flow consists of the following data items each of which is defined in its own DDE:

time_period{route_segment_guided_vehicles}

route_segment_volume_delay_predictions

This data flow contains output from the predictive model process showing predictions of the delay(s) due to traffic volume for route segments on the road and highway network served by the Manage Traffic function. This delay is the additional time that a vehicle will take to move from the start of a route segment to its end, above that which it would need in totally free flow conditions.

route_segment_way_point

This data flow is used within the Provide Driver and Traveler Services function and contains the location of a point part way along a route segment at which a vehicle's position is to be reported. It consists of the following data item which is defined in its own DDE:

location_identity

route_selection_and_guidance_requests_to_isp_data_collectors

This data flow is sent from the Provide Guidance and Routing Services function to the Collect ISP Services Data function. It contains the following data items each of which is defined in its own DDE:

request_route_selection_map_update
+ request_other_routes_map_update
+ transit_data_request_from_route_selection
+ multimodal_data_request_from_route_selection
+ traffic_data_request_from_route_guidance
+ weather_data_request_from_route_guidance

route_selection_map_data

This data flow is used by processes in the Provide Driver and Traveler Services function as a source of digitized data on the physical layout of the road and highway network. This is provided by the map update provider which is a specialist supplier of this type of data that is outside of ITS. The data consists of the following items each of which is defined in its own DDE:

map_digitized_data
+ map_link_identity_data

+ map_gazetteer_data
+ map_transit_data
+ map_hri_data

route_selection_parameters
This data store is used within the Provide Driver and Traveler Services function and contains parameters used to determine the way in which routes are selected for both traveler trip plans and for on-line vehicle guidance. The parameters govern the weighting that is to be given to the preferences and constraints provided as part of the input from the traveler or driver, and any particular streets, highways, bridges, etc. that are to be avoided.

route_selection_parameters_for_guidance
This data flow is used within the Provide Driver and Traveler Services function and contains parameters used to determine the way in which routes are selected for both traveler trip plans and for on-line vehicle guidance. The parameters govern the weighting that is to be given to the preferences and constraints provided as part of the input from the traveler or driver, and any particular streets, highways, bridges, etc. that are to be avoided.

route_start_time
This data flow is used within the Provide Driver and Traveler Services function. It contains the date and time at which a route will start taken from the time specified in the request for the route. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time

route_statistics
This data flow is used within the Provide Driver and Traveler Services function and contains the overall predicted statistics associated with a route which may assist the traveler in making a final route selection. The statistics will include such things as itinerary, estimated net travel time, time of arrival, total distance, anticipated delays/congestion, etc.

route_type
This data flow contains an indication of the type of route requested, or that for which data is available. It is stored and may have but not be limited to having a value of no data, dynamic route, or static route.

routes_for_vehicles_data
This data store is used within the Provide Driver and Traveler Services function. It contains details of all the vehicle routes which are currently being used by vehicles using dynamic guidance. The data store consists of the following data items each of which is defined in its own DDE:

list_size{vehicle_guidance_stored_data}

routing_parameters_for_m_and_c_fleet
This data flow provides a routing parameters for routing a maintenance and construction vehicle, including destination, preferences, constraints, etc.

S

safeguard_info
This data flow is the DMS state which gives warning of activation of the automated safeguard systems, such as blast shields or tunnel exhaust fans, indicating the condition that warranted the device's activation, or that the safeguard systems are activated.

safeguard_system_activation_request_from_emerg
This data flow is used within the Manage Emergency Services function to request activation of a safeguard system to support emergency response. These safeguard systems include equipment used to mitigate the impact of incidents on transportation infrastructure, such as blast shields, exhaust systems, etc.). It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ safeguard_system_control_request}

safeguard_system_activation_request_from_operator
This data flow is used within the Manage Emergency Services function to request activation of a safeguard system by the traffic operations personnel. These safeguard systems include equipment used to mitigate the impact of incidents on transportation infrastructure, such as blast shields, exhaust systems, etc.). It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ safeguard_system_control_request}

safeguard_system_control
This data flow provides configuration and control commands for safeguard systems that represent equipment used to mitigate the

impact of incidents on transportation infrastructure (e.g., blast shields, exhaust systems, etc.). It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ safeguard_system_control_data}

safeguard_system_control_data
This data flow provides control commands for a single safeguard system. These commands can be used to configure the system and to define the conditions under which the safeguard system is activated.

safeguard_system_control_request
This data flow is a request for activation or deactivation of a particular safeguard system, and any other supportive control and configuration data.

safeguard_system_data_for_archive
This data flow contains the operational status of safeguard systems (equipment used to mitigate the impact of incidents on transportation infrastructure, such as blast shields, exhaust systems, etc.). This flow is used to archive occurrences of safeguard system activation. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

safeguard_system_device_status
This data flow provides the operational status (state of the device, configuration, and fault data) of automated safeguard systems, such as blast shields and exhaust systems, to the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

safeguard_system_equip_status_for_m_and_c
This data flow provides the operational status (state of the device, configuration, and fault data) of automated safeguard systems, such as blast shields and exhaust systems, to the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can assess the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

safeguard_system_status
This data flow is used within the Manage Traffic function to report the status of a safeguard system (equipment used to mitigate the impact of incidents on transportation infrastructure, such as blast shields, exhaust systems, etc.). By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

safeguard_system_status_for_detours
This data flow is sent from the Manage Emergency Services function to the Manage Traffic function to report to another process the operational status of a safeguard system (equipment used to mitigate the impact of incidents on transportation infrastructure, such as blast shields, exhaust systems, etc.). By monitoring this data flow and thereby knowing which systems have been activated, the receiving process can better coordinate traffic detours. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

safeguard_system_status_to_emerg
This data flow is used within the Manage Emergency Services function to report to another process the operational status of a safeguard system (equipment used to mitigate the impact of incidents on transportation infrastructure, such as blast shields, exhaust systems, etc.). By monitoring this data flow and thereby knowing which systems have been activated, the receiving process can better coordinate an emergency response. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

safeguard_system_status_to_operator

This data flow is used within the Manage Emergency Services function to report to the traffic operations personnel the status of a safeguard system (equipment used to mitigate the impact of incidents on transportation infrastructure, such as blast shields, exhaust systems, etc.). By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

safeguard_system_to_traffic_data

This data flow provides information from the Provide Safeguard System Control function to the Display and Output Traffic Data function. It consists of the following items each of which is defined in its own DDE:

safeguard_system_data_for_archive
+ safeguard_system_status_to_operator

safeguard_to_device_control

This data flow provides data from the Provide Safeguard System Control function to the Provide Device Control function. It consists of the following items each of which is defined in its own DDE:

dms_safeguard_activated_from_roadway
+ roadway_info_safeguard_activated_from_traffic
+ t_other_rw_dms_safeguard_activated_from_roadway
+ safeguard_system_device_status

safety_advisory_message

This data flow contains a short description of a safety problem that has been detected on-board the vehicle, with some advice as to what action the driver should take. The problem may be related to the driver, the vehicle or the road ahead of the vehicle. The data flow displays a short concise message about the safety problem to be provided for output to the driver.

safety_data

This data flow is used within the Provide Vehicle Monitoring and Control function and contains the status of the driver in terms of their ability to control the vehicle, the status of the vehicle in terms of its continued ability to operate in a safe manner, data about the road conditions, e.g. ice, fog, rain, snow, etc.; as well as similar data concerning the actual movement and attitude of the vehicle. This data flow consists of the following data items each of which is defined in its own DDE:

driver_safety_status
+ vehicle_safety_status
+ environment_sensor_output
+ vehicle_motion_data
+ vehicle_attitude_data

safety_data_for_fleet_mgmt

This data flow contains data about vehicle safety, including the status of the driver in terms of their ability to control the vehicle, and the status of the vehicle, in terms of its continued ability to operate in a safe manner. It consists of the following data item which is defined in its own DDE:

safety_data_for_mcv
+ vehicle_id_for_mcv
+ date
+ time

safety_data_for_mcv

This data flow contains data about vehicle safety, including the status of the driver in terms of their ability to control the vehicle, and the status of the vehicle, in terms of its continued ability to operate in a safe manner. It consists of the following data items each of which is defined in its own DDE:

driver_safety_status
+ vehicle_motion_data
+ vehicle_attitude_data
+ vehicle_proximity_data
+ vehicle_safety_status

safety_state_for_driver

This data flow is used within the Provide Vehicle Monitoring and Control function and the Provide Driver and Traveler Services function. It contains an indication of the level of importance that must be attached to an associated safety warning. The warning may be related to the condition of the driver, the vehicle, or the road ahead of the vehicle. The data item is so that it can be used to define the seriousness of the safety condition. The character may describe but not be limited to defining advisory, e.g. windshield washer fluid level low, fairly serious, e.g. road ahead has severe bends, very serious, e.g. alternator not working, vehicle running on battery, critical, e.g. engine temperature too high, engine about to stop. The descriptive character is for use by the message output process in determining the level of priority that the message should have over other messages that are being output to the driver.

safety_warning_for_driver_condition

This data flow is used within the Provide Vehicle Monitoring and Control function and the Provide Driver and Traveler Services function. It contains a warning to the driver that current behavior patterns indicate to systems on-board the vehicle that he/she is incapable of maintaining proper control of the vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

safety_state_for_driver
+ safety_advisory_message

safety_warning_for_road_condition

This data flow is used within the Provide Vehicle Monitoring and Control function and the Provide Driver and Traveler Services function. It contains a warning to the driver that the road conditions ahead of the vehicle are unsafe, i.e. the vehicle may be in danger of suffering damage if it continues. The data flow consists of the following data items each of which is defined in its own DDE:

safety_state_for_driver
+ safety_advisory_message

safety_warning_for_vehicle_condition

This data flow is used within the Provide Vehicle Monitoring and Control function and the Provide Driver and Traveler Services function. It contains a warning to the driver that there is something wrong the vehicle, the nature of which is given in the accompanying text string. The data flow consists of the following data items each of which is defined in its own DDE:

safety_state_for_driver
+ safety_advisory_message

safety_warnings

This data flow is sent from the Provide Vehicle Monitoring and Control function to the Provide Driver and Traveler Services function. It contains safety warnings for drivers about the current operation of the vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

safety_warning_for_driver_condition
+ safety_warning_for_vehicle_condition
+ safety_warning_for_road_condition

schedule_change_for_connection_protection

This data flow contains schedule change information for the transit vehicle in order to provide connection protection for travelers moving through the transit systems (including possibly those on-board the transit vehicle.

scheduled_work_plan

This data flow is used within the Manage Maintenance and Construction function when managing resource needs and contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans

scheduled_work_plan_for_personnel

This data flow is used within the Manage Maintenance and Construction function and contains information for use by center personnel about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans

secure_area_audio

This data flow is used within the Manage Emergency Services function and contains the direct audio output of surveillance equipment in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ surveillance_device_type_identity
+ secure_audio

secure_area_audio_control

This data flow is used within the Manage Emergency Services function and contains control parameters for a specific audio system located in a secure area.

list_size + list_size{station_id
+ surveillance_device_type_identity
+ audio_control_data}

secure_area_audio_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the direct audio output of surveillance

equipment in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ surveillance_device_type_identity
+ secure_audio

secure_area_audio_status

This data flow contains operational status (state of the device, configuration, and fault data) information from audio systems located in secure areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc. as well as areas typically away from travelers such as tunnels, bridges, and roadway infrastructure. This data flow contains an indication that a fault has been found with the collection of audio data by the device and is used by the receiving process to monitor the health and current status of field equipment. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

secure_area_field_proc_parameters

This data flow is used within the Manage Emergency Services function and contains the information required to control the sensor and surveillance data processing occurring in the field. This data is collected from secure areas typically away from travelers (bridges, tunnels, roadway infrastructure, etc.). The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_surveillance_field_proc_parameters
+ secure_area_sensor_field_proc_parameters

secure_area_images

This data flow is used within the Manage Emergency Services function and contains the direct high-resolution digitized image output of surveillance equipment in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ surveillance_device_type_identity
+ secure_video_image

secure_area_images_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the direct high-resolution digitized image output of surveillance equipment in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ surveillance_device_type_identity
+ secure_video_image

secure_area_sensor_control

This data flow contains control parameters for sensors located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. It consists of the following data items each of which is defined in its own DDE:

infrastructure_integrity_sensor_control
+ threat_sensor_control
+ object_detection_sensor_control
+ intrusion_motion_sensor_control

secure_area_sensor_control_from_operator

This data flow contains control parameters for threat sensors, object detection sensors, intrusion and motion detection sensors, and infrastructure integrity sensors located in secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) and those typically away from travelers (bridges, tunnels, roadway infrastructure, etc.). It consists of the following data items each of which is defined in its own DDE:

threat_sensor_control
+ object_detection_sensor_control
+ intrusion_motion_sensor_control
+ infrastructure_integrity_sensor_control
+ traveler_threat_sensor_control
+ traveler_object_detection_sensor_control
+ traveler_intrusion_motion_sensor_control
+ vehicle_threat_sensor_control
+ vehicle_object_detection_sensor_control

secure_area_sensor_data

This data flow contains the direct output of sensors as well as the processed output of sensors in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. It consists of the following data items each of which is defined in its own DDE:

infrastructure_integrity_sensor_data
+ field_processed_infrastructure_integrity_sensor_data
+ threat_sensor_data
+ field_processed_threat_sensor_data
+ object_detection_sensor_data
+ field_processed_object_detection_sensor_data
+ intrusion_motion_sensor_data
+ field_processed_intrusion_motion_sensor_data

secure_area_sensor_data_to_operator

This data flow is used within the Manage Emergency Services function and is used to provide sensor data from secure areas for display to emergency personnel, including raw data from threat sensors, objection detection sensors, intrusion and motion detection sensors, and infrastructure integrity sensors, as well as data produced by processing that sensor data. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ sensor_identity
+ infrastructure_integrity_sensor_data_collected
+ infrastructure_integrity_sensor_processed_data
+ threat_sensor_data_collected
+ threat_sensor_processed_data
+ object_sensor_data_collected
+ object_sensor_processed_data
+ intrusion_motion_sensor_data_collected
+ intrusion_motion_sensor_processed_data}

secure_area_sensor_field_proc_parameters

This data flow contains parameters to define how the sensor data collected from secure areas (typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc.) is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing in the field and include threat sensors, intrusion and motion detection sensors, object detection sensors, and infrastructure integrity sensors.

secure_area_sensor_proc_parameters_from_operator

This data flow contains parameters to define how the sensor data collected from secure areas is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing at both the center and field and include threat sensors, intrusion and motion detection sensors, object detection sensors, and infrastructure integrity sensors.

secure_area_sensor_status

This data flow contains the status of sensors located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. This status includes of the configuration of the device and an indication of any device faults. It consists of the following data items each of which is defined in its own DDE:

infrastructure_integrity_sensor_status
+ threat_sensor_status
+ object_detection_sensor_status
+ intrusion_motion_sensor_status

secure_area_sensor_status_to_operator

This data flow contains the status of threat sensors, objection detection sensors, intrusion and motion detection sensors, and infrastructure integrity sensors located in secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) and those typically away from travelers (bridges, tunnels, roadway infrastructure, etc.). This status includes of the configuration of the device and an indication of any device faults. It consists of the following data items each of which is defined in its own DDE:

threat_sensor_status
+ object_detection_sensor_status
+ intrusion_motion_sensor_status
+ infrastructure_integrity_sensor_status
+ traveler_threat_sensor_status
+ traveler_object_detection_sensor_status
+ traveler_intrusion_motion_sensor_status
+ vehicle_threat_sensor_status
+ vehicle_object_detection_sensor_status

secure_area_sensor_threat_data

This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from sensor systems in secure areas typically away from travelers, such as tunnels, bridges, roadway infrastructure, etc. This data is collected from threat sensors, object detection sensors, intrusion and motion sensors, and infrastructure integrity sensors, and could include an alarm indicating that a threshold has been met or a data pattern recognized.

The data flow consists of the following data items each of which is defined in its own DDE:

sensor_threat_data
+ location_identity

secure_area_sensor_threat_information_to_operator

This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from sensor systems in secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, on-board transit vehicles, etc.) and those typically away from travelers (tunnels, bridges, roadway infrastructure). This data is collected from threat sensors, object detection sensors, intrusion and motion sensors, and infrastructure integrity monitoring sensors. This data could include an alarm indicating that a threshold has been met or a data pattern recognized, and could be a result of a single sensor or correlation of data from multiple sensors and sensor types. The data flow consists of the following data items each of which is defined in its own DDE:

sensor_threat_data
+ geographical_area

secure_area_surveillance

This data flow is used within the Manage Emergency Services function and contains the direct video and audio output of surveillance equipment as well as the processed output of that equipment in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_images
+ field_processed_secure_area_images
+ secure_area_audio
+ field_processed_secure_area_audio

secure_area_surveillance_control

This data flow is used within the Manage Emergency Services function and contains control parameters for closed circuit television (cctv) and audio systems located in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_video_control
+ secure_area_audio_control

secure_area_surveillance_control_from_operator

This data flow is used within the Manage Emergency Services function and contains control parameters for closed circuit television (cctv) and audio systems located in secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) and those typically away from travelers (bridges, tunnels, and other roadway infrastructure). The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_surveillance_control
+ traveler_secure_area_surveillance_control
+ vehicle_secure_area_surveillance_control

secure_area_surveillance_data_to_operator

This data flow is used within the Manage Emergency Services function and is used to provide surveillance data from secure areas to emergency system personnel, including high resolution video images, audio, and data produced by processing those images and audio. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image
+ secure_audio
+ secure_area_images
+ secure_video_image_data
+ secure_audio_data}

secure_area_surveillance_field_proc_parameters

This data flow contains parameters to define how the surveillance data collected from secure areas (typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc.) is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing in the field.

secure_area_surveillance_proc_parameters_from_operator

This data flow contains parameters to define how the surveillance data collected from secure areas is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing at both the center and field.

secure_area_surveillance_status

This data flow is used within the Manage Emergency Services function and contains operational status (state of the device, configuration, and fault data) information from closed circuit television (cctv) and audio systems located in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. This data flow contains an indication that a fault has been found with the collection of video or audio data by the device. The data flow consists of the following data items each of

which is defined in its own DDE:

secure_area_video_status
+ secure_area_audio_status

secure_area_surveillance_status_to_operator
This data flow is used within the Manage Emergency Services function and contains status information from closed circuit television (cctv) and audio systems located in secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) and those typically away from travelers (bridges, tunnels, and other roadway infrastructure). This data flow contains an indication that a fault has been found with the collection of video or audio data by the device. The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_surveillance_status
+ traveler_secure_area_surveillance_status
+ vehicle_secure_area_surveillance_status

secure_area_surveillance_threat_data
This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from surveillance systems in secure areas typically away from travelers, such as tunnels, bridges, roadway infrastructure, etc. This data could include an alarm indicating that a threshold has been met or an audio or video pattern recognized. The data flow consists of the following data items each of which is defined in its own DDE:

surveillance_threat_data
+ location_identity

secure_area_surveillance_threat_information_to_operator
This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from surveillance systems in secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, on-board transit vehicles, etc.) and those typically away from travelers (tunnels, bridges, roadway infrastructure). This data could include an alarm indicating that a threshold has been met or an audio or video pattern recognized, and could be a result of a single surveillance system or correlation of data from multiple surveillance systems. The data flow consists of the following data items each of which is defined in its own DDE:

surveillance_threat_data
+ geographical_area

secure_area_threat_data
This data flow contains threat data including threats detected, threshold alarms, and verified threats in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. It consists of the following data items each of which is defined in its own DDE:

secure_area_sensor_threat_data
+ secure_area_surveillance_threat_data

secure_area_traveler_alarm_response
This data flow provides an audio or textual response to a traveler who has initiated an alarm. The response might indicate actions the traveler should take, or ask for additional information from the traveler.

secure_area_video_control
This data flow is used within the Manage Emergency Services function and contains control parameters for a specific closed circuit television (cctv) system located in a secure area. These parameters may specify camera pan, tilt, and zoom, plus other picture controls.

list_size + list_size{station_id
+ surveillance_device_type_identity
+ video_control_data}

secure_area_video_status
This data flow contains operational status (state of the device, configuration, and fault data) information from closed circuit television (cctv) systems located in secure areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc. as well as areas typically away from travelers such as tunnels, bridges, and roadway infrastructure. This data flow contains an indication that a fault has been found with the collection of video data by the device and is used by the receiving process to monitor the health and current status of field equipment. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

secure_audio
This data flow contains the direct digitized audio output of surveillance equipment in secure areas.

secure_audio_data
This data flow is used within the Manage Emergency Services function and contains the data produced by processing audio data

from surveillance systems. It is analyzed and used to detect potential threats in secure areas.

secure_sensor_and_surveillance_control

This data flow is used within the Manage Emergency Services function to control sensors and surveillance, including device configuration, processing control, and data collection. The data flow consists of the following data item which is defined in its own DDE:

secure_area_sensor_control
+ secure_area_surveillance_control
+ transit_vehicle_sensor_control
+ vehicle_secure_area_surveillance_control
+ traveler_sensor_control
+ traveler_secure_area_surveillance_control
+ secure_area_field_proc_parameters
+ vehicle_secure_area_field_proc_parameters
+ traveler_secure_area_field_proc_parameters

secure_sensor_and_surveillance_data

This data flow is used within the Manage Emergency Services function for sensor and surveillance data, and includes raw data (or images) as well as field-processed data. The data flow consists of the following data item which is defined in its own DDE:

secure_area_sensor_data
+ secure_area_surveillance
+ transit_vehicle_sensor_data
+ transit_vehicle_surveillance
+ traveler_sensor_data
+ traveler_surveillance

secure_sensor_and_surveillance_status

This data flow is used within the Manage Emergency Services function to collect sensor and surveillance status, and device equipment status, operational status, etc. The data flow consists of the following data item which is defined in its own DDE:

secure_area_sensor_status
+ secure_area_surveillance_status
+ transit_vehicle_sensor_status
+ vehicle_secure_area_surveillance_status
+ traveler_sensor_status
+ traveler_secure_area_surveillance_status

secure_sensor_and_surveillance_threat_data

This data flow contains threat data including threats detected, threshold alarms, and verified threats secure areas and consists of the following data items each of which is defined in its own DDE:

secure_area_threat_data
+ transit_vehicle_threat_data
+ traveler_secure_area_threat_data

secure_sensors_transit_vehicle_location

This data flow is used within the Manage Transit function to provide the exact location of the transit vehicle. It contains the transit vehicle location plus its identity. It is used to provide the location of the transit vehicle containing security sensing functions. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location

secure_surveillance_transit_vehicle_location

This data flow is used within the Manage Transit function to provide the exact location of the transit vehicle. It contains the transit vehicle location plus its identity. It is used to provide the location of the transit vehicle containing security surveillance functions. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location

secure_transit_vehicle_alarm_acknowledge

This data flow confirms that the request for emergency services previously sent by the traveler (including users of the transit system) or transit vehicle operator via a silent or audible alarm on-board a transit vehicle has been received by the Manage Emergency Services function. The information will be sent out as part of the response to an emergency or incident being detected within the network. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag

secure_transit_vehicle_alarm_acknowledge_for_transit

This data flow confirms that the request for emergency services previously sent by the traveler (including users of the transit system) or transit vehicle operator via a silent or audible alarm on-board a transit vehicle has been received by the Manage Transit function. The information will be sent out as part of the response to an emergency or incident being detected within the network. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag

secure_transit_vehicle_alarm_request
This data flow is sent from the traveler (including users of the transit system) or transit vehicle operator on-board a transit vehicle to the Manage Emergency Services function and includes a silent or audible alarm request for emergency assistance. The data flow contains the following data items each of which is defined in its own DDE:

date
+ time
+ transit_vehicle_operator_personal_emergency_request
+ traveler_personal_emergency_request_for_transit

secure_transit_vehicle_alarm_request_for_transit
This data flow is sent from the traveler (including users of the transit system) or transit vehicle operator on-board a transit vehicle to the Manage Transit function and includes a silent or audible alarm request for emergency assistance. The data flow contains the following data items each of which is defined in its own DDE:

date
+ time
+ transit_vehicle_operator_personal_emergency_request
+ traveler_personal_emergency_request_for_transit

secure_transit_vehicle_broadcast_message
This data flow contains textual information for travelers on-board a transit vehicle. The information will be sent out as part of the response to an emergency or incident being detected within the network.

secure_transit_vehicle_emergency_information
This data flow is used within the Manage Transit function and contains details of emergency requests that have been input on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

secure_transit_vehicle_alarm_request_for_transit
+ transit_vehicle_location

secure_transit_vehicle_location
This data flow is used within the Manage Transit function to provide the exact location of the transit vehicle. It contains the transit vehicle location plus its identity. It is used to provide the location of the traveler who has issued a silent alarm from on-board a transit vehicle. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location

secure_video_image
This data flow contains a high-resolution digitized image of occurrences in a secure area, including areas frequented by travelers as well as those typically away from travelers.

secure_video_image_data
This data flow is used within the Manage Emergency Services function and contains the data produced by processing image data from systems such as surveillance closed circuit television (cctv). It is analyzed and used to detect potential threats in secure areas.

security
This data flow identifies any special security constraints on the data described by these attributes. This data flow may include an indication of whether the data is to be stored or sent encrypted.

security_device_status
This data flow is used to collect device status data, including fault information and current operational state, from security sensors and surveillance devices such as cameras, audio surveillance, motion detection, infrastructure monitors, etc.

security_sensor_equip_maint_status
This data flow consists of a report to the Manage Emergency Services function from the Manage Maintenance and Construction function of the current status of security sensor equipment maintenance activity. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{station_id
+ sensor_identity
+ security_device_status}

security_sensor_equip_status_for_m_and_c
This data flow is sent from the Manage Emergency Services function to the Manage Maintenance and Construction function to report the operational status (state of the sensor device, configuration, and fault data) of security sensors, including threat sensors (e.g., thermal, acoustic, radiological, chemical), intrusion and motion detection sensors, object detection sensors, and infrastructure integrity sensors. These sensors are located in secure areas frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) or areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. By monitoring this data flow, the receiving process can monitor the health and

current status of field equipment, and arrange for repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

traveler_threat_sensor_status
+ traveler_object_detection_sensor_status
+ traveler_intrusion_motion_sensor_status
+ threat_sensor_status
+ object_detection_sensor_status
+ intrusion_motion_sensor_status
+ infrastructure_integrity_sensor_status
+ vehicle_threat_sensor_status
+ vehicle_object_detection_sensor_status

security_surveillance_equip_maint_status
This data flow consists of a report to the Manage Emergency Services function from the Manage Maintenance and Construction function of the current status of security surveillance equipment maintenance activity. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{station_id
+ surveillance_device_type_identity
+ security_device_status}

security_surveillance_equip_status_for_m_and_c
This data flow is sent from the Manage Emergency Services function to the Manage Maintenance and Construction function to report the operational status (state of the device, configuration, and fault data) of security surveillance equipment. These audio and video devices are located in secure areas frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) or areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment, and arrange for repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

traveler_secure_area_surveillance_status
+ secure_area_surveillance_status
+ vehicle_secure_area_surveillance_status

select_headway
This data flow is used within the Provide Vehicle Control and Monitoring function and contains details of the distance between the vehicle and the next vehicle in front (headway) selected by the driver or zero if headway control is to be disabled.

select_lane_hold
This data flow is used within the Provide Vehicle Control and Monitoring function and contains an indication that the driver has or has not selected lane holding.

select_speed
This data flow is used within the Provide Vehicle Control and Monitoring function and contains details of the vehicle speed selected by the driver or zero if speed control is to be disabled.

selected_dynamic_lane_strategy
This data flow is used within the Manage Traffic function and contains the strategy which has been selected for implementation in areas with dynamic lane management or shoulder use. The strategy may be either 'open', 'closed', 'admit x class vehicles' or 'admit vehicles when not congested' and may be applied to some or all of the lanes in the geographic area served by the function. The data flow consists of the following data items each of which is defined in its own DDE:

lane_list
+ selected_lane_strategy_type

selected_emergency_strategy
This data flow is used within the Manage Traffic function to specify the type of traffic control strategy to be applied to some or all of the road (surface streets) and highway traffic control units controlled by a TMC. The strategy will be based on the emergency vehicle route provided by the route selection facility in the Provide Driver and Traveler Services function. It will give preemption to the emergency vehicle(s) by ensuring that they are given the proceed indication (green signal) as they approach each individual intersection, pedestrian and ramp meter control unit along the emergency vehicle route. Another feature of the strategy may be the direction of other vehicles to use particular lanes on a surface street or highway so that the emergency vehicle(s) have a lane for their sole use.

selected_emergency_vehicle_strategy
This data flow is used within the Manage Traffic function and contains the strategy which has been selected to enable preemption to be given to emergency vehicles through the road (surface street) and highway network controlled by the TMC. It will cover intersection controllers, pedestrian controllers, dynamic message signs (DMS) that control lane use and ramp metering controllers. The strategies for each of these individual types of unit will be sent out as the strategies to their individual control processes. The strategy may be applied to some or all of the units on the roads and highways in the geographic area served by the TMC. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_list

+ ramp_list
+ selected_emergency_strategy

selected_highway_control_strategy

This data flow is used within the Manage Traffic function and contains the strategy which has been selected for implementation at some or all of the indicators on the highways in the geographic and jurisdictional area(s) served by the function. The strategy may be one of several depending on that which is best suited to control of traffic on the highways. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ 1{indicator_identity}list_size
+ selected_strategy_type
+ highway_sign_plan_number

selected_hri_control_strategy

This data flow is used within the Manage Traffic function and contains the strategy which has been selected for implementation at some or all of the indicators at grade crossings in the geographic and jurisdictional area(s) served by the function. The strategy may be one of several depending on that which is best suited to control of traffic at the grade crossing. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ 1{crossing_id}list_size
+ selected_hri_strategy

selected_hri_strategy

This data element represents a preplanned control strategy for indicators associated with a single railroad grade crossing, multiple grade crossings or interlocked railroad and highway intersection(s).

selected_lane_strategy_type

This data flow is used within the Manage Traffic function and contains the strategy which has been selected for implementation by dynamic lane management equipment. The strategy may vary based on traffic or environmental conditions. These would be things such as low congestion, incidents downstream, or situations where additional traffic will not increase the level of congestion such that free flow conditions break down. An override will be provided to enable the lane or shoulder to be opened if closing it will cause unacceptable congestion to other parts of the surrounding roadway network.

selected_parking_lot_control_strategy

This data flow is used within the Manage Traffic function and contains the strategy which has been selected for implementation at parking lots to control their use. The strategy will be designed to promote or discourage the use of a parking lot by directing vehicles to or away from it through the use of dynamic message signs (DMS). The decision on which strategy to employ will depend upon such things as the overall traffic management strategy, the need to restrict vehicle use because of a number of factors e.g. congestion, pollution, and the desire to encourage travelers to make use of alternative modes of transport by using park and ride (P+R) facilities. The strategy may be applied to some or all of the parking lots in the geographic area served by the TMC. The data flow consists of the following data items each of which is defined in its own DDE:

parking_lot_list
+ selected_parking_lot_strategy_type

selected_parking_lot_strategy_type

This data flow is used within the Manage Traffic function to specify the type of strategy to be applied to some or all of the parking lots controlled by a TMC. The strategy type will be designed to promote or discourage the use of a particular parking lot and thus may either 'open' or 'close' the lot, indicate the state of the lot, i.e. the number of spaces remaining, or give priority to vehicles that are part of car or van pools.

selected_ramp_control_strategy

This data flow is used within the Manage Traffic function and contains the strategy which has been selected for implementation at highway entry ramps by the local ramp metering equipment. The strategy may be either 'open', 'closed' or 'admit vehicles when not congested' and may be applied to some or all of the ramps in the geographic area served by the TMC. The data flow consists of the following data items each of which is defined in its own DDE:

ramp_list
+ selected_ramp_strategy_type

selected_ramp_strategy_type

This data flow is used within the Manage Traffic function and contains the strategy which has been selected for implementation by ramp metering equipment. The strategy may typically be one which either permanently opens or closes the ramp, or enables traffic to join the highway under certain conditions. These would be things such as low congestion on the highway, or situations where additional traffic entering the highway will not increase the level of congestion such that free flow conditions break down. An override will be provided to enable the ramp to be opened if closing it will cause unacceptable congestion to the surrounding surface streets.

selected_road_control_strategy

This data flow is used within the Manage Traffic function and contains the strategy which has been selected for implementation at some or all of the indicators on the roads in the geographic and jurisdictional area(s) served by the function. The strategy may be one of several depending on that which is best suited to control of traffic on the roads. The data flow consists of the following

data items each of which is defined in its own DDE:

list_size
+ 1{indicator_identity}list_size
+ selected_strategy_type
+ indicator_road_adaptive_plan_number
+ indicator_road_fixed_plan_number

selected_roadway_control_strategy

This data flow is used within the Manage Traffic function and contains the strategy which has been selected for implementation at traffic signal and lane use control devices on the roads in the geographic and jurisdictional area(s) served by the function. In this context, roadway means roads (surface streets) and highways. The data flow consists of the following data items each of which is defined in its own DDE:

selected_road_control_strategy
+ selected_highway_control_strategy

selected_strategy

This data flow is used within the Manage Traffic function to transfer the current traffic control strategies being implemented on highways and roads (surface streets) from the Provide Device Control facility to the Provide Traffic Surveillance facility for loading into the store of long term data. It contains the following data items each of which is defined in its own DDE:

selected_roadway_control_strategy
+ selected_ramp_control_strategy
+ selected_parking_lot_control_strategy
+ selected_emergency_vehicle_strategy

selected_strategy_data

This data flow specifies supplementary data that goes with the strategy type data. Thus it may be anything from a simple fixed time traffic signal control plan number, to a set of adaptive control parameters.

selected_strategy_type

This data flow specifies the type of traffic control strategy to be applied to some or all of the road (surface street) and highway indicators controlled by a TMC.

sensor_allocation

This data flow contains details of the way in which sensors are allocated to the various types of road and highway control and output devices, detection devices, and other units capable of collected data from traffic within the geographic area controlled by the function. The data flow consists of the following data items each of which is defined in its own DDE:

sensor_allocation_for_controllers
+ sensor_allocation_for_hov_lanes
+ sensor_allocation_for_probes

sensor_allocation_for_controllers

This data flow contains details of the way in which vehicle and pedestrian sensors are allocated to the various types of road and highway control and output devices within the geographic area controlled by ITS. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + sensor_list}

sensor_allocation_for_hov_lanes

This data flow contains details of the way in which vehicle sensors are allocated for the detection of vehicles in high occupancy vehicle (hov) lanes. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{hov_lane_identity
    + sensor_list}

sensor_allocation_for_probes

This data flow contains details of the way in which vehicle probe data collection units are located and allocated to links in the road and freeway network served by the function. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{link_identity
    + vehicle_probe_data_source_identity
    + vehicle_probe_data_source_location}

sensor_configuration_data

This data flow provides control commands for advanced sensors, including video sensing systems.

sensor_data

This data flow is used within the Provide Vehicle Monitoring and Control function and contains data about a vehicle's position and speed obtains from on-board sensors. It consists of the following data items each of which is defined in its own DDE:

headway
+ lane_deviation
+ speed

sensor_data_for_archive

This data flow is used to archive sensor data from secure areas, including raw data from threat sensors, objection detection sensors, intrusion and motion detection sensors, and infrastructure integrity sensors, as well as data produced by processing that sensor data. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ sensor_identity
+ infrastructure_integrity_sensor_data_collected
+ infrastructure_integrity_sensor_processed_data
+ threat_sensor_data_collected
+ threat_sensor_processed_data
+ object_sensor_data_collected
+ object_sensor_processed_data
+ intrusion_motion_sensor_data_collected
+ intrusion_motion_sensor_processed_data}

sensor_data_input

This data flow is used within the Manage Traffic function and contains other sensor data such as pedestrian, multimodal crossing, and HOV data. It consists of the following items each of which are defined in its own DDE:

hov_sensor_data
+ multimodal_crossing_sensor_data
+ pedestrian_sensor_data
+ reversible_lane_sensor_data
+ dynamic_lane_sensor_data
+ dynamic_lane_sensor_data_to_roadway
+ road_user_protection_data_for_traffic
+ road_user_protection_video_for_traffic

sensor_description

This data flow is used within the Manage Traffic function to identify individual sensors used to provide data for the control of traffic on roads (surface streets) and highways. The sensors can be of any type and may detect vehicles of all types, and/or cycles, and/or pedestrians. The data flow consists of the following data items each of which is defined in its own DDE:

sensor_type
+ unit_number
+ location_identity

sensor_device_status

This data flow is used to collect the operational status (state of the sensor device, configuration, and fault data) of an individual sensor. By monitoring this data flow, the receiving process can monitor the health and current status of the equipment.

sensor_identity

This data flow contains an identifier of an individual sensor or a sensor managed by a sensor station. The identifier is either the actual equipment identifier or a code indicating the type of the sensor (e.g., wind, chemical, temperature, precipitation, traffic flow, etc).

sensor_list

This data flow includes a list of the identity(ies) of the traffic and pedestrian sensors that are associated with a particular indicator, which may be an intersection, pedestrian or highway entry ramp controller. The sensors are used to provide details of traffic and pedestrian movements and are used in the management of conditions on the road and highway network controlled by the Manage Traffic function. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{sensor_description}

sensor_output_data_for_isp

This data flow contains traffic sensor data that is provided to other ITS functions for use in providing traveler services. The data flow consists of the following data items each of which is defined in its own DDE:

traffic_sensor_data
+ traffic_video_image
+ pedestrian_sensor_data
+ hri_sensor_data

sensor_parameters

This data flow is used within the Manage Traffic function to send data between the Provide Device Control and Provide Traffic Surveillance facilities. It contains the following items of data each of which is defined in its own DDE:

current_dms_data_displayed
+ current_ramp_state
+ current_roadway_network_data
+ cv_incidents_for_other_TMC
+ emergency_data_for_other_TMC
+ indicator_control_storage_data
+ indicator_input_storage_data
+ link_data_update
+ network_and_device_inventory
+ new_sensor_static_data
+ parking_lot_current_state
+ dynamic_parking_information_for_traffic
+ request_other_TMC_data
+ request_sensor_static_data
+ selected_strategy
+ selected_dynamic_lane_strategy
+ other_status_for_highways
+ other_status_for_roads
+ other_roadway_information_status
+ control_data_for_highways
+ control_data_for_roads
+ roadway_information_data
+ signal_override_status
+ barrier_system_status_to_operator
+ barrier_system_data_for_archive
+ lighting_system_status_to_operator
+ roadway_info_operator_status
+ vehicle_signage_operator_status
+ roadway_warning_system_status_to_operator
+ static_data_for_archive
+ f_other_rw_road_user_protection_warning

sensor_status_from_traffic

This data flow is used within the Manage Traffic function to provide the operational status of sensors that collect information at the roadside. It consists of the following data items each of which is defined in its own DDE:

hov_sensor_status
+ traffic_sensor_status
+ multimodal_crossing_sensor_status
+ pedestrian_sensor_status
+ reversible_lane_sensor_status
+ environmental_sensor_status
+ shoulder_management_device_status
+ lane_management_device_status
+ road_user_protection_device_status

sensor_status_to_roadway_m_and_c

This data flow represents the data flows from Process Sensor Data to Manage Roadway M&C Activities and includes roadway equipment status. It consists of the following items each of which is defined in its own DDE:

hov_sensor_equip_status_for_m_and_c
+ traffic_sensor_equip_status_for_m_and_c
+ env_sensor_data_for_auto_treat_device
+ infrastructure_sensor_status_for_m_and_c
+ infrastructure_sensor_data_for_m_and_c
+ infrastructure_sensor_equip_status_for_m_and_c
+ environmental_sensor_equip_status_for_m_and_c
+ multimodal_crossing_sensor_equip_status_for_m_and_c
+ pedestrian_sensor_equip_status_for_m_and_c
+ reversible_lane_sensor_equip_status_for_m_and_c

sensor_threat_data

This data flow contains threat information based on processing and analysis of data collected from sensor systems in secure areas. This data could include an alarm indicating that a threshold has been met or a data pattern recognized, and support information detailing the type, urgency, and severity of the threat.

sensor_threat_data_for_analysis

This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from sensor systems in secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, on-board transit vehicles, etc.) and those typically away from travelers (tunnels,

bridges, roadway infrastructure). This data is collected from threat sensors, object detection sensors, intrusion and motion sensors, and infrastructure integrity monitoring sensors. This data could include an alarm indicating that a threshold has been met or a data pattern recognized, and could be a result of a single sensor or correlation of data from multiple sensors and sensor types. The data flow consists of the following data items each of which is defined in its own DDE:

sensor_threat_data
+ geographical_area

sensor_type
This data flow contains the type for a particular sensor. The type defines both what the sensor will detect and the type of unit that it is. The type is represented by character codes and may be but are not limited to appearing as ground based sensor for all types of vehicles, ground based sensor for emergency vehicles, ground based sensor for transit vehicles, above ground based sensor for all types of vehicles, above ground based sensor for emergency vehicles, above ground based sensor for transit vehicles, ground based sensor for cycles, above ground based sensor for cycles, ground based sensor for pedestrians, above ground based sensor for pedestrians.

sensor_vehicle_speed_data
This DFD flow represents the data flows from Process Sensor Data to Manage Vehicle Speed and includes speed data and environmental sensor data. It consists of the following items each of which is defined in its own DDE:

speed_data_for_m_and_c_speed_monitoring
+ speed_data_for_traffic_speed_monitoring
+ env_sensor_data_for_speed_enforcement
+ traffic_sensor_data_for_variable_speed_limits
+ env_sensor_data_for_variable_speed_limits
+ road_user_warning_speed_conditions

setting_identity
This data flow contains an identifier for a travelers setting, which is used to describe a set of conditions or preferences under which the traveler wants information reported to them in a subscription mode.

setting_preferences
This data flow contains code or text describing the preferences chosen by the traveler. These preferences are then paired with the setting type to create a complete picture of how the traveler wants information transmitted to them.

setting_type
This data flow contains a code for the type of setting which is being produced.

shelter_availability
This data flow contains information regarding the availability of shelters. Information contained includes if the shelter is open, number of people the shelter can accommodate in total, the current occupation of the shelter, etc.

shelter_facilities_available
This data flow contains information regarding specific facilities available at a shelter. Information contained includes handicap facilities, medical capabilities, food and water supplies available, counseling services, pet/animal accommodations, disposal, storage, etc.

shelter_information
This data flow contains information about individual shelters or groups of shelters operated by a relief organization within a region. It contains the location, type, available space, and any other facilities provided at the shelter. The data flow consists of the following data items which are defined in their own DDE:

shelter_availability
+ shelter_location
+ shelter_type
+ shelter_facilities_available

shelter_information_to_travelers
This data flow contains information about individual shelters or groups of shelters operated by a relief organization in a region that may be used by the traveler information services function. It contains the location, type, available space, and any other facilities provided at the shelter(s).

shelter_location
This data flow contains information regarding the location of shelters.

shelter_type
This data flow contains information regarding the type of shelter. Information contained includes the type of shelter (underground, tornado, hurricane, chemical, radiation, etc).

shoulder_controls
This data flow is used within the Manage Traffic function and contains the actual control data to be passed to a shoulder lane controller. The state will show either "proceed" (green), "stop" (red) or some other state dependent on what has been determined as the best strategy for traffic.

shoulder_management_control

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators at roadway shoulders served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + shoulder_controls}

shoulder_management_device_status

This data flow provides the operational status (state of the device, configuration, and fault data) of dynamic shoulder use control devices. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

shoulder_management_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of dynamic shoulder use systems to the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can assess the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

shoulder_management_status

This data flow provides the operational status (state of the device, configuration, and fault data) of a shoulder use indicator used for the Manage Traffic function. This data flow shows that an indicator has developed a fault and is therefore operating incorrectly. The fault will have been found by a process that is local to the indicator itself. The data flow consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity
+ station_id

shoulder_violation_notification_for_traffic

This data flow within the Manage Traffic function contains vehicle-specific information about a shoulder lane use violation.

shoulder_width

This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains the standard width of the right shoulder and left shoulder of a link.

signage_barrier_activated_from_roadway

This data flow from an automated barrier system causes an in-vehicle signage transmitter to send an indication of the status of the barrier system (e.g. open, closed) and whether access has been granted. The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ barrier_info}

signage_roadway_warning_from_roadway

This data flow is for an in-vehicle signage transmitter and contains warnings for drivers concerning potential roadway hazards, e.g., roadway weather conditions, road surface conditions, traffic congestion and queues, obstacles in the roadway.

signage_traffic_metering_data_from_roadway

This data flow is used within the Manage Traffic function and contains data for use in producing in-vehicle signage message. It provides information to drivers approaching a meter, such as advance warning of the meter, its operational status (whether it is currently on or not, how many cars per green are allowed, etc.), lane usage at the meter (including a bypass lane for HOVs) and existing queue at the meter.

signage_variable_speed_data_from_roadway

This data flow is used internal to a roadside device to control the messages to be output using in-vehicle signage as drivers approach an area with variable speed limits. This speed limit may vary based on traffic or environmental conditions.

signal_override_status

This data flow is sent to the Manage Traffic function and contains data pertaining to the request from the Manage Transit function or Manage Emergency services for signal priority or signal preemption. This will be at the controller for a particular road junction, pedestrian crossing, or highway entrance ramp. The data is sent directly from the signal as an override function rather than a signal malfunction. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_vehicle_preemptions
+ transit_vehicle_roadway_priorities

signal_preemption_override
This data flow is sent to the Select Strategy function to indicate that a roadside controller has been preempted by a request from the Manage Emergency services function. This will be at the controller for a particular intersection, pedestrian crossing, or highway entrance ramp. The data is sent directly from the signal as an override function rather than a signal malfunction.

signal_priority_override
This data flow is sent to the Select Strategy function to indicate that a roadside controller has changed its original timing plan in response to a request for priority from the Manage Transit function. This will be at the controller for a particular intersection, pedestrian crossing, or highway entrance ramp. The data is sent directly from the signal as an override function rather than a signal malfunction.

signal_priority_rules
This data flow contains the business rules under which signal priority would be requested by a transit vehicle. For example, how late must a transit vehicle be on its route before priority is requested?

signal_system_configuration
This data flow is used within the Manage Traffic function. It contains the system configuration data for a set of traffic signal controllers in the geographic and/or jurisdictional area(s) served by the function. This includes devices such as Signal System Master (SSM) and Signal System Local (SSL) equipment and the parameters required to direct their operations.

signal_system_timing_plan
This data flow is used within the Manage Traffic function to provide the traffic controllers in the field - either stand-alone devices or coordinated systems - with the current traffic signal timing plan. These may include variations based on time period (morning or evening rush) or special events. It will provide parameters such as the minimum green times, interval durations for basic operations, modes of operation supported (time based or traffic responsive), etc.

silent_and_audible_alarm_acknowledge
This data flow is used within the Manage Emergency Services function to confirm that the request for emergency assistance previously sent to the center personnel by a traveler or transit vehicle operator has been received. The traveler may be on-board a transit vehicle or at a transit stop, rest area, park and ride lot, modal interchange facility, etc. The data flow contains the following data items each of which is defined in its own DDE:

confirmation_flag

silent_and_audible_alarm_data
This data flow is used by the Manage Silent Alarms function to forward emergency calls and emergency data from travelers (including users of the transit system), and transit vehicle operators to another process where it is then distributed. It contains the following data items, each of which is contained in its own DDE:

traveler_alarm_request
+ secure_transit_vehicle_alarm_request
+ time

silent_and_audible_alarm_request
This data flow is used within the Manage Emergency Services function to inform the center personnel that a traveler or transit vehicle operator has issued a silent or audible alarm request for emergency assistance. The traveler may be on-board a transit vehicle or at a transit stop, rest area, park and ride lot, modal interchange facility, etc. The data flow contains the following data items each of which is defined in its own DDE:

traveler_alarm_request
+ secure_transit_vehicle_alarm_request
+ time

silent_and_audible_alarm_response
This data flow provides an audio or textual response to a traveler who has initiated an alarm. The response might indicate the response actions being taken, actions the traveler should take, or ask for additional information from the traveler.

skyway_information
This data flow contains details contains details for skyway information (available skyways, skyways under construction, etc.) available to pedestrians.

source_identity
This data item defines the logical identifier of a source of information. For example this may be an ISP identifier which is attached to messages intended for users of that particular ISP.

source_reliability_information
This data flow contains an assessment of the reliability of the sources of weather or road condition data. This assessment addresses the risk entailed in using each data source as part of decision support.

special_vehicle_application

This data flow contains details about a special vehicle required for securing credentials. This could be a commercial vehicle that is carrying cargo which could be viewed as being liable to cause a potential incident. Loads falling into this category are those containing hazardous (HAZMAT) material, or those which ore outsize, e.g. wide, heavy or fragile and hence slow moving. The data flow consists of the following data items each of which is defined in its own DDE:

hazmat_load_data

special_vehicle_priority_routing

This data flow is a special form of route similar to an emergency vehicle route, but for use by other vehicle types which may be given special priority routing (e.g., traffic control preemption routing). This could be applied to HOV vehicles, special HAZMAT, priority vehicles (e.g., governors motorcade), or even to regular vehicles under a low traffic volume period (e.g., in the early hours of the morning). This flow contains the items shown below each of which is defined in its own DDE:

route
+ vehicle_identity

special_vehicle_speed_limit

This data flow contains information on speed limits for special vehicles. Speed limits may be posted on signs at the roadside. Special vehicles include commercial vehicles, government vehicles, etc. It consists of the following items each of which are defined in its own DDE:

vehicle_type
+ vehicle_class

speed

This data flow is used within the Provide Vehicle Control and Monitoring function and contains the vehicle's speed as computed from on-board sensors.

speed_data_for_m_and_c_display

This data flow contains vehicle speed data for display to the Maintenance and Construction Center Personnel. The speed data could be actual sensor data, or data that has been processed or aggregated. It consists of the following data items each of which are defined in its own DDE:

individual_vehicle_speed
+ processed_speed_sensor_data

speed_data_for_m_and_c_speed_monitoring

This data flow contains speed data obtained from processing the inputs from sensors around the road network. It consists of the following data items each of which is defined in its own DDE:

list_size
+ 1{station_id
+ sensor_identity
+ traffic_sensor_output}list_size

speed_data_for_status

This data flow contains vehicle speed data for use in developing work zone status. The speed data could be actual sensor data, or data that has been processed or aggregated. It consists of the following data items each of which are defined in its own DDE:

individual_vehicle_speed
+ processed_speed_sensor_data

speed_data_for_traffic_display

This data flow contains vehicle speed data for display to the Traffic Operations Personnel. The speed data could be actual sensor data, or data that has been processed or aggregated. It consists of the following data items each of which are defined in its own DDE:

individual_vehicle_speed
+ processed_speed_sensor_data

speed_data_for_traffic_speed_monitoring

This data flow is used within the Manage Traffic function and contains speed data obtained from processing the inputs from sensors around the road network. It consists of the following data items each of which is defined in its own DDE:

list_size
+ 1{station_id
+ sensor_identity
+ traffic_sensor_output}list_size

speed_data_for_traffic_status

This data flow contains vehicle speed data for use in developing overall traffic status. The speed data could be actual sensor data, or data that has been processed or aggregated. It consists of the following data items each of which are defined in its own DDE:

individual_vehicle_speed

+ processed_speed_sensor_data

speed_limit
This data flow contains the actual speed limit is the legal speed for a specific section of roadway to be set according to traffic engineering standards and should not exceed design speed of the roadway.

speed_sensor_control
This data flow provides control commands for a single speed sensor at the roadway. These commands can be used to configure the sensor and to define the conditions under which vehicle speed is output to the driver (e.g. a warning may be given only when the speed exceeds the limit set by the control command).

speed_sensor_control_from_m_and_c
This data flow provides control commands for speed sensors at the roadway, including safe speed threshold parameters based on environmental conditions and vehicle characteristics. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{sensor_identity
+ speed_sensor_control}

speed_sensor_control_from_m_and_c_personnel
This data flow provides control commands from Maintenance and Construction Center Personnel for a vehicle speed sensor at the roadway.

speed_sensor_control_from_traffic
This data flow provides control commands for speed sensors at the roadway, including safe speed threshold parameters based on environmental conditions and vehicle characteristics. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{sensor_identity
+ speed_sensor_control}

speed_sensor_control_from_traffic_personnel
This data flow provides control commands from the Traffic Operations Personnel interface for a vehicle speed sensor at the roadway.

speed_sensor_data
The data flow represents the output of a single speed sensor located at the roadway.

speed_sensor_equip_status_for_m_and_c
This data flow provides the operational status (state of the device, configuration, and fault data) of speed sensor equipment for the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can monitor the configuration, health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

speed_sensor_log_for_m_and_c
This data flow contains a log of speed sensor information. The data flow may provide periodic summaries of the speed of vehicles as measured by the sensors (e.g. a processed view such as a speed profile). The data flow may provide actual sensor readings that can be filtered and analyzed by the Monitor Vehicle Speed in Work Zone process. It consists of the following data items each of which are defined in its own DDE:

list_size + list_size{sensor_identity
+ speed_sensor_data}
+ processed_speed_sensor_data

speed_sensor_log_for_traffic
This data flow contains a log of speed sensor information. The data flow may provide periodic summaries of the speed of vehicles as measured by the sensors (e.g. a processed view such as a speed profile). The data flow may provide actual sensor readings that can be filtered and analyzed by the Monitor Vehicle Speed in Work Zone process. It consists of the following data items each of which are defined in its own DDE:

list_size{sensor_identity
+ speed_sensor_data}
+ processed_speed_sensor_data

speed_sensor_status
This data flow provides the operational status (state of the device, configuration, and fault data) of speed sensor equipment for the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

speed_sensor_status_for_m_and_c

This data flow provides a report of the status of a set of speed sensors. The status flow provides the sensor configuration as well as a fault indication. By monitoring this data flow, the receiving process can monitor the health and current status of the field equipment. It consists of the following data items each of which are defined in its own DDE:

list_size{station_id
+ sensor_identity
+ sensor_device_status}

speed_violation_notification_for_m_and_c

This data flow contains an indication that a speed violation has been identified. The data flow would not contain the identification of the violating vehicle. It consists of the following data item which is defined in its own DDE:

individual_vehicle_speed

speed_violation_notification_for_traffic

This data flow contains an indication that a speed violation has been identified. The data flow would not contain the identification of the violating vehicle. It consists of the following data item which is defined in its own DDE:

individual_vehicle_speed

speed_warning_for_display

This data flow contains a speed warning or safe speed advisory that can be displayed to a driver via a dynamic message sign (DMS). The message may indicate that the vehicle is exceeding the speed limit, how many miles per hour over the speed limit was measured, or a speed limit based on environmental conditions, traffic conditions, and vehicle characteristics.

speed_warning_for_signage

This data flow contains a speed warning or safe speed advisory that can be transmitted to a driver via in-vehicle signage. The message may indicate that the vehicle is exceeding the speed limit, how many miles per hour over the speed limit was measured, or a speed limit based on environmental conditions, traffic conditions, and vehicle characteristics.

ssr_control_request

This data flow requests specialized control device activation at a grade crossing identified as a suitable for Standard Speed Rail service.

ssr_device_control

This data flow controls the state of specialized control devices at a grade crossing identified as a suitable for Standard Speed Rail service.

ssr_device_control_state

This data flow contains the state of specialized control devices at a grade crossing identified as a suitable for Standard Speed Rail service.

staging_area

This data flow shall identify and locate staging areas in order to coordinate responses to major incidents.

standard_data_attribute

This data flow is used to identify the presence and use of meta-data attributes for data as defined in an industry standard such as IEEE P1489, Standard for Data Dictionaries for Intelligent Transportation Systems.

standard_message_attribute

This data flow is used to identify the presence and use of meta-data attributes for messages as defined in an industry standard such as IEEE P1488, Standard for Message Set Template for Intelligent Transportation Systems.

state_contact_address

This data flow is used within the Manage Emergency Services function and contains the full postal address (including zip code) of a state Department of Motor Vehicle (DMV) office. This is one of the details that is used to obtain vehicle registration data from a vehicle license.

state_contact_computer

This data flow is used within the Manage Emergency Services function and contains the computer telephone number of a state Department of Motor Vehicle (DMV) office. This number provides direct but password and encrypted access to a computer within the DMV office, and is one of the details that is used to obtain vehicle registration data from a vehicle license.

state_contact_data

This data flow is used within the Manage Traffic function and contains the contact information for all state Department of Motor Vehicle (DMV) offices from which a match between vehicle license and vehicle registration number can be obtained. It consists of the following data items each of which is defined in its own DDE:

state_contact_method
+ state_contact_details
+ state_contact_identity

state_contact_details

This data flow is used within the Manage Emergency Services function and contains the details of all the available access points for a state Department of Motor Vehicle (DMV) office. These access points comprise addresses, telephone numbers, etc. through which the DMV office may be sent vehicle license data from which it is expected that vehicle registration information will be provided. Not all entries may be present, and as a minimum only one is needed. The details are contained in the following data items each of which is defined in its own DDE:

state_contact_address
+ state_contact_computer
+ state_contact_email
+ state_contact_fax
+ state_contact_name
+ state_contact_phone

state_contact_email

This data flow is used within the Manage Emergency Services function and contains the e-mail address of a state Department of Motor Vehicle (DMV) office. This is one of the details that is used to obtain vehicle registration data from a vehicle license.

state_contact_fax

This data flow is used within the Manage Emergency Services function and contains the telephone number of the fax line for a state Department of Motor Vehicle (DMV) office. This is one of the details that is used to obtain vehicle registration data from a vehicle license.

state_contact_identity

This data flow contains an identity code for a particular State Department of Motor Vehicle (DMV) office from which a match between vehicle license and vehicle registration number can be obtained. There is one of these codes for every state and each uses the standard two character abbreviation for each State, e.g. MD for Maryland, CA for California, etc.

state_contact_method

This data flow defines the method by which a state Department of Motor Vehicle (DMV) office shall be contacted with details of a vehicle license for which the corresponding registration data is required. This may have but will not be limited to one of the following entries to define the method: e-mail message, postal service, voice based telephone call, fax, etc. Only one method should be specified for each agency, the processes responsible for passing the data being able to report failure to communicate.

state_contact_name

This data flow is used within the Manage Emergency Services function and contains the name of a state Department of Motor Vehicle (DMV) office. This is one of the details that is used to obtain vehicle registration data from a vehicle license.

state_contact_phone

This data flow is used within the Manage Emergency Services function and contains the voice line telephone number of a state Department of Motor Vehicle (DMV) office. This is one of the details that is used to obtain vehicle registration data from a vehicle license.

static_data_attributes

This data flow is used to provide meta data included with static traffic data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute

+ standard_message_attribute

static_data_for_archive

This data flow contains a copy of that loaded into a store and is for use by the Manage Archived Data function. The data flow consists of the following data item which is defined in its own DDE:

static_data_for_traffic_control

static_data_for_control

This data flow includes data that is used by the processes that output control data to roadside equipment on roads and highways. The data flow consists of the following items each of which is defined in its own DDE:

static_data_for_highway_control
+ static_data_for_road_control
+ static_data_for_vehicle_signage
+ static_data_for_dms_allocation

static_data_for_dms_allocation

This data flow includes data that is used by the process that outputs control data to dynamic message signs (DMS) at the roadside and monitors its subsequent operation. The data flow consists of the following items each of which is defined in its own DDE:

dms_allocation
+ dms_hri_allocation

static_data_for_highway_control

This data flow includes data that is used by the process that outputs control data to roadside equipment on freeways and monitors its subsequent operation. The data flow consists of the following items each of which is defined in its own DDE:

highway_control_devices
+ highway_network
+ ramp_devices

static_data_for_highways

This data flow is used by processes within the Manage Traffic function. It contains data that defines the way in which each highway indicator (vehicle outputs only) operates plus the way in which each segment of the highway network fits together. It consists of the following data items each of which is defined in its own DDE:

highway_network
+ highway_control_devices
+ indicator_highway_control_static_data
+ sensor_allocation
+ coordination_rules_for_highways

static_data_for_incident_management

This data store contains data used in the processing of raw incident data provided from a variety of sources. It consists of the following data items each of which is defined in its own DDE:

highway_network
+ road_network
+ road_segment_location

static_data_for_parking_lots

This data flow is used within the Manage Traffic function and contains data that relates vehicle sensors, queue counting sensors and signs to individual parking lots, and the lot occupancy(ies) at which states such as 'almost full' and 'full' will apply. The data is sent to each parking lot for its own use. The data flow consists of the following data items each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_sensor_allocation
+ parking_lot_state_thresholds
+ parking_lot_dms_allocation

static_data_for_ramps

This data flow is used by processes within the Manage Traffic function. It contains data that defines the way in which each highway ramp operates plus the way in which each segment highway network fits together. It consists of the following data items each of which is defined in its own DDE:

highway_network
+ ramp_devices

static_data_for_road_control

This data flow includes data that is used by the process that outputs control data to roadside equipment on roads (surface streets and railroad grade crossings) and monitors its subsequent operation. The data flow consists of the following items each of which is defined in its own DDE:

road_control_devices
+ road_network

static_data_for_roads

This data flow comprises data that defines the way in which each road indicator (vehicle outputs, pedestrian outputs and multimodal crossing outputs) operates, plus rules for the coordination of the road and highway control strategies, and the way in which each segment of the road network fits together. It consists of the following data items each of which is defined in its own DDE:

road_network
+ indicator_road_control_static_data
+ road_control_devices
+ sensor_allocation
+ coordination_rules_for_roads

static_data_for_roadways

This data flow is used by processes within the Manage Traffic function. It contains data that defines the static data for both highways and roads. It consists of the following data items each of which is defined in its own DDE:

static_data_for_highways
+ static_data_for_roads

static_data_for_sensor_processing

This data store is used in the Manage Traffic function. It contains data that shows which data items obtained by processes in the Provide Traffic Surveillance facility apply to other processes in the Traffic Surveillance and Control facility. It consists of the following data items each of which is defined in its own DDE:

highway_control_devices
+ highway_network
+ ramp_devices
+ road_control_devices
+ road_network
+ sensor_allocation
+ dms_allocation
+ dms_hri_allocation

static_data_for_strategy

This data flow is used by processes within the Manage Traffic function. It contains data that defines the way in which all junction, pedestrian and ramp controllers and signs operate, the default (background) control strategy, plus the way in which each segment of the road and highway network fits together. It consists of the following data items each of which is defined in its own DDE:

background_strategy
+ highway_control_devices
+ highway_network
+ ramp_devices
+ road_control_devices
+ road_network

static_data_for_traffic_control

This data store contains data used in the processing of data provided by traffic sensors and in the control of indicators (intersection signals, pedestrian crossing signals, etc) and signal timing plans that manage traffic flow. It consists of the following data items each of which is defined in its own DDE:

background_strategy
+ coordination_rules_for_highways
+ coordination_rules_for_roads
+ highway_control_devices
+ highway_network
+ indicator_highway_control_static_data
+ indicator_road_control_static_data
+ parking_lot_static_data
+ ramp_devices
+ road_control_devices
+ road_network
+ sensor_allocation
+ vehicle_signage_output_identity
+ dms_allocation
+ link_data
+ roadway_characteristics

static_data_for_traffic_control_output

This data flow contains a copy of that loaded into a store and is for use by other processes within the function. The data flow consists of the following data item which is defined in its own DDE:

static_data_for_traffic_control

static_data_for_vehicle_signage

This data flow includes data that is used by the process that outputs control data to roadside equipment responsible for broadcasting data for use by in-vehicle signage systems. This data consists of the identity of the roadside equipment and the identity of the indicators whose data may be output by the roadside equipment. The data flow consists of the following items each of which is defined in its own DDE:

list_size
+ list_size{vehicle_signage_output_identity
    + indicator_identity}

static_data_store_updated

This data flow is used within the Manage Traffic function and signals that new data has been loaded into the store of static data for traffic control. This flow is used enable the update of the static data used by other processes within the function.

static_parking_data_for_drivers

This data flow contains static parking information to be sent to the driver. This includes lot location, features (e.g. ability to handle oversized vehicles), capacity, type, hours of operation and rates. This data flow is made up of the following data items, each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_hours_of_operation
    + parking_lot_identity
    + parking_lot_entrance_location
    + parking_lot_type
    + parking_lot_features
    + handicap_access_information}

static_parking_information_for_isp

This data flow contains static parking information that would be of interest to travelers. This includes lot location, features (e.g. ability to handle oversized vehicles), capacity, type, hours of operation and rates. This data flow is made up of the following data items, each of which is defined in its own DDE:

list_size{parking_lot_hours_of_operation
    + parking_lot_identity
    + parking_lot_price
    + parking_lot_spaces
    + parking_lot_entrance_location
    + parking_lot_type
    + parking_lot_features
    + parking_lot_fill_time
    + handicap_access_information}

static_parking_information_for_traffic

This data flow contains static parking information that would be of interest to traffic management. This includes lot location, features (e.g. ability to handle oversized vehicles), capacity, type, hours of operation and rates. This data flow is made up of the following data items, each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_hours_of_operation
    + parking_lot_identity
    + parking_lot_entrance_location
    + parking_lot_type
    + parking_lot_features
    + handicap_access_information}

static_parking_information_for_transit

This data flow contains static parking information that would be of interest to transit management. This includes lot location, features (e.g. ability to handle oversized vehicles), capacity, type, hours of operation and rates. This data flow is made up of the following data items, each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_hours_of_operation
    + parking_lot_identity
    + parking_lot_price
    + parking_lot_spaces
    + parking_lot_entrance_location
    + parking_lot_type
    + parking_lot_features
    + parking_lot_fill_time
    + handicap_access_information}

station_id

This data flow contains the identifier of a specific piece of field equipment.

status_data_for_highways

This data flow contains status for indicators operating at the roadside on highways in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

indicator_highway_requested_state

status_data_for_roads

This data flow contains the status for indicator data operating at the roadside on roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

indicator_input_state_for_roads

status_of_other_work_zones

This data flow contains the current status of other work zones, including field personnel status, maintenance and construction vehicle status, and activity status.

steering_commands

This data flow contains data showing any changes required to the vehicle's steering so that it will change from the current lane to an adjacent lane on either side (left or right). The commands are of the form turn left, turn right, or center the steering and may be of a larger order of magnitude than the similar commands for lane following control.

storage_facility_id

This data flow is used within the Manage Maintenance and Construction function and contains the unique facility identification number assigned to each maintenance and construction storage facility.

stored_credit

This data flow is contains the value of the credit currently stored by the traveler card / payment instrument.

stored_driver_identity_characteristics

This data flow is used to provide roadside facilities with data stored onboard a commercial vehicle concerning the identity of the driver. This data flow consists of the following item which is defined in its own DDE:

driver_identity

stored_incident_data

This data flow is used within the Manage Traffic function. It contains the current incidents and planned events at a single point in time. The data flow consists of the following data items each of which is defined in its own DDE:

current_incident_data
+ planned_event_data

strategy_data

This data flow is used within the Manage Traffic function. It contains processed surveillance data which is used to determine the traffic control strategy for the road and highway network served by the function. It consists of the following data items each of which is defined in its own DDE:

strategy_data_for_roads
+ strategy_data_for_highways

strategy_data_for_dynamic_lane_management

This data flow is used within the Manage Traffic function. It contains processed traffic data, plus data about the closure of multimodal crossings, which is used to determine the traffic control strategy for dynamic lane management and shoulder use systems served by the function. It consists of the following data items each of which is defined in its own DDE:

crossing_data_for_highways
+ hov_priority
+ link_strategy_data

strategy_data_for_highways

This data flow is used within the Manage Traffic function. It contains processed traffic data, plus data about the closure of multimodal crossings, which is used to determine the traffic control strategy for the highway network served by the function. It consists of the following data items each of which is defined in its own DDE:

crossing_data_for_highways
+ hov_priority
+ link_strategy_data

strategy_data_for_roads

This data flow is used within the Manage Traffic function. It contains processed traffic and pedestrian surveillance data, plus data about the closure of multimodal crossings, which is used to determine the traffic control strategy for the road network served by the function. It consists of the following data items each of which is defined in its own DDE:

crossing_data_for_roads
+ hov_priority
+ pedestrian_data
+ link_strategy_data

strategy_date
This data flow is the date of the year on which a traffic control strategy is to be implemented on the road and highway network (including parking lots) served by the Manage Traffic function. The strategy implemented on this date will be the background strategy, i.e. that which is used when no overrides due to incidents, emergency vehicle routes, traffic systems operator intervention, or demand management changes are in force.

strategy_day
This data flow is the day of the week on which a traffic control strategy is to be implemented on the road and highway network (including parking lots) served by the Manage Traffic function. The strategy implemented on this day will be the background strategy, i.e. that which is used when no overrides due to incidents, emergency vehicle routes, traffic systems operator intervention, or demand management changes are in force.

strategy_end_time
This data flow is the end time for a traffic control strategy to be implemented on the road and highway network (including parking lots) served by the Manage Traffic function. The strategy that is removed at this time will be the background strategy, i.e. that which is used when no overrides due to incidents, emergency vehicle routes, traffic systems operator intervention, or demand management changes are in force. The data flow consists of the following data item which is defined in its own DDE:

time

strategy_preemption
This data flow is a request to preempt the normal execution of a local control plan because of unusual circumstances (e.g. an incident) at an HRI.

strategy_start_time
This data flow is the start time for a traffic control strategy to be implemented on the road and highway network (including parking lots) served by the Manage Traffic function. The strategy implemented at this time will be the background strategy, i.e. that which is used when no overrides due to incidents, emergency vehicle routes, traffic systems operator intervention, or demand management changes are in force. The data flow consists of the following data item which is defined in its own DDE:

time

suggested_route_to_mcv
This data flow provides a suggested route for a dispatched vehicle that takes into account current traffic conditions, the current location and routes of other vehicles, and any road restrictions. This data flow identifies the maintenance and construction vehicle and provides turn-by-turn route information. The data flow consists of the following data items each of which is defined in its own DDE:

route_identity
+ route_segment_number{route_segment_description
    + route_segment_end_point
    + route_segment_estimated_travel_time
    + route_segment_report_position_points
    + route_segment_start_point}
+ vehicle_id_for_mcv

supplied_route
This data flow is used within the Provide Driver and Traveler Services function to provide details of a route selected by the traveler. It contains the following data items each of which is defined in its own DDE:

route
+ route_cost
+ traveler_identity

supply_incident_static_data
This data flow includes new and/or amended static data for use in incident management. This data consists of details of the road network plus the location and relationship between links in the network. It therefore contains the contents of the following data store which is defined in its own DDE:

static_data_for_incident_management

surface_trans_weather_advisories
This data flow provides an indication of surface transportation related weather situations that cause significant impact upon the surface transportation network. Examples of these might be frost warnings or high profile vehicle advisories for strong winds. Advisories are issued for significant events that are occurring, are imminent, or have a very high probability of occurrence.

surface_trans_weather_archive_catalog
This data flow is used to provide the description of the data contained in the collection of surface transportation weather data from

the Surface Transportation Weather Service terminator that has been made available for the Manage Archive Function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g., time range of entries, number of entries; or sample data products.

surface_trans_weather_archive_catalog_request
This data flow from the Manage Archived Data function to the Surface Transportation Weather Service contains the request for a catalog of the data held by the terminator. The request for a catalog may include either or both the description of the types of data the archive is interested in or a time frame over which the requested information may be available.

surface_trans_weather_archive_data_request
This data flow from the Manage Archived Data function to the surface Transportation Weather Service contains the request for the data held by the terminator. The request for data may include either or both the description of the data required or a timeframe over which the requested information may be available.

surface_trans_weather_data_for_archive
This data flow is sent by the Surface Transportation Weather Service terminator and contains weather information that may be of interest to archive data users systems along with the meta data that is necessary to describe the imported data to the Manage Archived Data function. This data flow contains the following items each of which is defined in its own DDE:

surface_trans_weather_observations
+ weather_observation_attributes
+ micro_scale_surface_trans_weather_forecasts
+ miso_scale_surface_trans_weather_forecasts
+ meso_scale_surface_trans_weather_forecasts
+ synoptic_scale_surface_trans_weather_forecasts
+ climatic_scale_surface_trans_weather_forecasts
+ surface_trans_weather_scale_forecast_data_attributes

surface_trans_weather_forecast_details
This data flow contains forecasts of specific surface transportation related weather variables including temperature (ambient, dew point and pavement), pressure, wind parameters (direction, speed, and character), humidity, precipitation, roadway visibility, light conditions, and pavement conditions. The data flow also contains weather variable attributes such as ensemble statistics, initialization time of forecast, source of boundary conditions, means of forecast, the application location of the forecast and the applicable time of the forecast.

surface_trans_weather_information
This data flow consists of surface transportation weather information from the Surface Transportation Weather Service terminator, including current surface weather observations and various scales of surface weather forecasts. It contains the following items that will be organized by geographic area to allow for local variations and each of which is defined in its own DDE:

fstws-surface_trans_weather_observations
+ fstws-surface_trans_weather_forecasts

surface_trans_weather_observations
This data flow contains surface transportation related weather observations including temperature (ambient, dew point and pavement), pressure, wind parameters (direction, speed, and character), humidity, precipitation (amount and type), roadway visibility, light conditions, pavement conditions, etc.

surface_trans_weather_scale_forecast_data_attributes
This data flow contains meta data about the meteorological scale surface transportation weather forecast including persistence of an observation or previous forecast, numerical model used, model output statistics (MOS), and any description of how forecast types are combined.

surveillance_data_for_archive
This data flow is used to archive surveillance data from secure areas, including high resolution video image snapshots, audio, and data produced by processing those images and audio. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image
+ secure_audio
+ secure_area_images
+ secure_video_image_data
+ secure_audio_data}

surveillance_data_for_env
This flow represents the data flows from Provide Traffic Surveillance to Manage Environmental Information and includes environmental sensor data and status information. It consists of the following items each of which is defined in its own DDE:

environmental_sensor_data_from_roadway
+ environmental_sensor_status_from_roadway
+ environmental_sensor_data_from_roadway_sensors

+ environmental_sensor_status_from_roadway_sensors
+ environmental_sensor_data_from_traffic_management

surveillance_data_for_output
This DFD flow passes data from the Process and Store Traffic Data to the Display and Output Traffic Data functions. It consists of the following items each of which is defined in its own DDE:

current_data_for_output
+ long_term_data_for_output
+ env_sensor_status_for_traffic_operator
+ dynamic_lane_status_to_operator

surveillance_device_type_identity
This data flow contains an identifier indicating the type of surveillance equipment (video, audio).

surveillance_threat_data
This data flow contains threat information based on processing and analysis of data collected from surveillance systems in secure areas. This data could include an alarm indicating that a threshold has been met or an audio or video pattern recognized, and support information detailing the type, urgency, and severity of the threat.

surveillance_threat_data_for_analysis
This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from surveillance systems in secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, on-board transit vehicles, etc.) and those typically away from travelers (tunnels, bridges, roadway infrastructure). This data could include an alarm indicating that a threshold has been met or an audio or video pattern recognized, and could be a result of a single surveillance system or correlation of data from multiple surveillance systems. The data flow consists of the following data items each of which is defined in its own DDE:

surveillance_threat_data
+ geographical_area

synoptic_scale_surface_trans_weather_forecasts
This data flow contains forecasts of surface transportation related weather and weather related events at time horizons from 12 hours to several days and spatial horizon of 100 to 5000 kilometers. The time horizon is defined as the time between the observations on which the forecast is based (alternatively, when the forecast process is started) and the time that the forecast applies to. It consists of the following data item which is defined in its own DDE:

surface_trans_weather_forecast_details

synoptic_scale_weather_forecasts
This data flow contains forecasts of atmospheric weather and weather related events at time horizons from 12 hours to several days and spatial horizon of 100 to 5000 kilometers. The time horizon is defined as the time between the observations on which the forecast is based (alternatively, when the forecast process is started) and the time that the forecast applies to. It consists of the following data items each of which is defined in its own DDE:

weather_forecast_details
+ weather_watches

system_status_onboard_to_mcv_operator
This data flow is used within the Manage Maintenance and Construction function to inform the field personnel about the maintenance and construction activity performed by the vehicle. Operational data includes the operational state of the maintenance equipment (e.g., blade up/down, spreader pattern) and a record of the actual work performed. It consists of the following data item which is defined in its own DDE:

operational_data_for_mcv

T

t_other_rw_dms_auto_treat_data_from_roadway
This data flow from an automated road treatment system causes a roadway information device such as a dynamic message sign (DMS) to display an indication of the status of automated road treatment (e.g. on-going, just completed, about to begin). The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}

t_other_rw_dms_barrier_activated_from_roadway
This data flow from an automated barrier system causes a roadway information device such as a dynamic message sign (DMS)

to display an indication of the status of the barrier system (e.g. open, closed). The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}

t_other_rw_dms_roadway_warning_from_roadway

This data flow from a roadway warning system causes a roadway information device such as a dynamic message sign (DMS) to display warnings for drivers concerning potential roadway hazards, e.g., roadway weather conditions, road surface conditions, traffic congestion and queues, obstacles in the roadway. The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display.

t_other_rw_dms_safeguard_activated_from_roadway

This data flow from an automated safeguard system (e.g. blast shields, exhaust fans) causes a roadway information device such as a dynamic message sign (DMS) to display an indication of the status of the safeguard system (e.g. ongoing, just completed, about to begin). The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}

t_other_rw_dms_traffic_metering_data_from_roadway

This data flow is sent to other highway roadside devices (e.g. another ramp meter controller or lane control device) and contains status, fault indications, and control information for a field indicator. It consists of the following data item which is defined in its own DDE:

roadway_info_traffic_metering_data

t_other_rw_env_sensor_control_by_auto_treat_device

This data flow provides control commands for an environmental sensor being controlled by automated treatment devices at the roadway. The data flow consists of the following data item which is defined in its own DDE:

env_sensor_control_by_roadway_treatment_device

t_other_rw_env_sensor_data

This data flow contains data about environmental conditions detected by roadside sensors that can be output to other roadside devices. This data may include fog detection, temperature information, or icy conditions that could be used to warn drivers as they approach the area or as input to an automated treatment device at the roadway. It consists of the following data items each of which is defined in its own DDE:

t_other_rw_env_sensor_data_for_auto_treat_device
+ t_other_rw_env_sensor_data_to_dms

t_other_rw_env_sensor_data_for_auto_treat_device

This data flow provides data from an individual environmental sensor into an automated treatment device at the roadway. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ environment_sensor_output

t_other_rw_env_sensor_data_to_dms

This data flow contains information from the output of an environment sensor for direct display on a roadway information device (e.g. a dynamic message sign (DMS)). It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{station_id + sensor_identity + environment_sensor_output}

t_other_rw_fc_control_to_fc

This data flow is sent to another highway roadside device (e.g., another ramp meter controller) and contains control information for a highway roadside indicator. It can contain the actual data from which instructions to the driver and traveler can be produced by indicators at the roadside on highways in the geographic and/or jurisdictional area(s) served by the function. It is used for sharing of control between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

indicator_crossing_control_data_for_highways
+ indicator_ramp_control_data

t_other_rw_fc_control_to_traffic_sensor

This data flow is sent to a traffic sensor device on the roadside from a highway roadside indicator (e.g., ramp meter controller)

and contains sensor control commands.

t_other_rw_fc_status_to_fc

This data flow is sent to another highway roadside device (e.g. another ramp meter controller) and contains operational status (state of the device, configuration, and fault data) for a highway roadside indicator. It is used for coordination between peer roadside indicators or for information transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ device_identity
+ roadside_device_status
+ indicator_response_state}

t_other_rw_fc_to_fc

This data flow is sent to other highway roadside devices (e.g. another ramp meter controller) and contains status, fault indications, and control information for a highway roadside indicator. It is used for coordination between peer roadside indicators or for information transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

t_other_rw_fc_status_to_fc
+ t_other_rw_fc_control_to_fc

t_other_rw_ic_collision_data

This data flow is sent to another roadside device (another intersection controller) and contains imminent crash warnings and control information for a roadside indicator. It is used for coordination between peer roadside indicators or for information transfer between devices functioning in a hierarchical arrangement.

t_other_rw_ic_control_to_ic

This data flow is sent to another roadside device (another intersection controller) and contains control information for a roadside indicator. It can contain the actual data from which instructions to the driver and traveler can be produced by indicators at the roadside on roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It is used for sharing of control between devices functioning in a hierarchical arrangement. It may also be used to exchange information between a Signal System Master (SSM) and Signal System Local (SSL) equipment. It consists of the following data items each of which is defined in its own DDE:

indicator_crossing_control_data_for_roads
+ indicator_intersection_control_data
+ indicator_pedestrian_control_data

t_other_rw_ic_control_to_traffic_sensor

This data flow is sent to a traffic sensor device on the roadside from a roadside indicator (e.g., intersection controller) and contains sensor control commands.

t_other_rw_ic_fault_to_ic

This data flow is sent to another roadside device and contains fault data for a traffic signal controller. It is used for coordination between peer roadside devices or for information transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ device_identity
+ roadside_device_fault}

t_other_rw_ic_status_to_ic

This data flow is sent to another roadside device (another intersection controller) and contains operational status (state of the device, configuration) for a roadside indicator. It is used for coordination between peer roadside indicators or for information transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ device_identity
+ roadside_device_status
+ indicator_response_state}

t_other_rw_ic_to_ic

This data flow is sent to another roadside device (another intersection controller) and contains status, fault, and control information for a roadside indicator. It is used for coordination between peer roadside indicators or for information transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

t_other_rw_ic_status_to_ic
+ t_other_rw_ic_control_to_ic
+ t_other_rw_ic_fault_to_ic

t_other_rw_individual_vehicle_speed_to_dms

This data flow contains an indication of an individual vehicle's speed which can be displayed on a dynamic message sign (DMS).

This data flow is sent from one roadside device (the speed sensor) to another roadside device (the DMS).

t_other_rw_individual_vehicle_speed_to_signage
This data flow contains an indication of an individual vehicle's speed which can be sent using in-vehicle signage. This data flow is sent from one roadside device (the speed sensor) to another roadside device (the in-vehicle signage transmitter).

t_other_rw_pedestrian_sensor_data
This data flow is used within the Manage Traffic function to send the pedestrian call data to other roadway devices. It consists of the following item which is defined in its own DDE:

pedestrian_demand

t_other_rw_road_user_protection_warning
This data flow contains road user protection warnings that are being sent to another roadside device.

t_other_rw_roadway_warning_from_roadway
This data flow from a roadway warning system causes a roadway information device such as a dynamic message sign (DMS) or in-vehicle signage system to display warnings for drivers concerning potential roadway hazards, e.g., roadway weather conditions, road surface conditions, traffic congestion and queues, obstacles in the roadway. It consists of the following items each of which is defined in its own DDE:

t_other_rw_dms_roadway_warning_from_roadway
+ t_other_rw_signage_roadway_warning_from_roadway

t_other_rw_sensor_to_fc
This data flow is sent to a highway roadside indicator from a traffic sensor device on the roadside and contains sensor status, fault data, and vehicle detection data. It consists of the following data items each of which is defined in its own DDE:

t_other_rw_traffic_sensor_data_to_fc
+ t_other_rw_traffic_sensor_status_to_fc

t_other_rw_sensor_to_ic
This data flow is sent to a roadside indicator from a traffic sensor device on the roadside and contains sensor status, fault data, and vehicle detection data. It consists of the following data items each of which is defined in its own DDE:

t_other_rw_traffic_sensor_data_to_ic
+ t_other_rw_traffic_sensor_status_to_ic

t_other_rw_signage_roadway_warning_from_roadway
This data flow from a roadway warning system causes a roadway information device such as an in-vehicle signage system to broadcast warnings for drivers concerning potential roadway hazards, e.g., roadway weather conditions, road surface conditions, traffic congestion and queues, obstacles in the roadway. The data flow may contain the actual data from which instructions to the driver and traveler can be produced or it may contain a code that causes a specific message to be sent.

t_other_rw_signage_traffic_metering_data_from_roadway
This data flow contains information concerning lane use and ramp metering devices to be broadcast over in-vehicle signage systems located in other roadway devices. It consists of the following item which is defined in its own DDE:

roadway_info_traffic_metering_data

t_other_rw_speed_warning_to_dms
This data flow contains a speed warning or safe speed advisory that can be displayed to a driver via a dynamic message sign (DMS). The message may indicate that the vehicle is exceeding the speed limit, how many miles per hour over the speed limit was measured, or a safe speed advisory based on environmental conditions and vehicle characteristics. The data flow is sent from one roadside device (the speed sensor) to another roadside device (the dynamic message sign).

t_other_rw_speed_warning_to_signage
This data flow contains a speed warning or safe speed advisory that can be sent to a driver via in-vehicle signing. The message may indicate that the vehicle is exceeding the speed limit, how many miles per hour over the speed limit was measured, or a safe speed advisory based on environmental conditions and vehicle characteristics. The data flow is sent from one roadside device (the speed sensor) to another roadside device (the in-vehicle signage transmitter).

t_other_rw_traffic_sensor_data_to_fc
This data flow is sent to a highway roadside indicator from a traffic sensor device on the roadside and contains vehicle detection data; i.e., data that provides information about vehicles moving on the highway network. It consists of the following data item which is defined in its own DDE:

vehicle_detection_data

t_other_rw_traffic_sensor_data_to_ic
This data flow is sent to a roadside indicator (intersection controller) from a traffic sensor device on the roadside and contains vehicle detection data; i.e., data that provides information about vehicles moving on the road network. It consists of the following data item which is defined in its own DDE:

vehicle_detection_data

t_other_rw_traffic_sensor_status_to_fc

This data flow is sent to a highway roadside indicator from a traffic sensor device on the roadside and contains operational status (state of the device, configuration, and fault data) for that sensor. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

t_other_rw_traffic_sensor_status_to_ic

This data flow is sent to a roadside indicator from a traffic sensor device on the roadside and contains operational status (state of the device, configuration, and fault data) for that sensor. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

t_other_rw_variable_speed_limit_data

This data flow to an Other Roadway System provides the speed limit information for use in device control. This is the safe speed for vehicles based on current traffic conditions, environmental conditions, and local policy, and safe speed thresholds.

t_other_rw_variable_speed_limit_data_to_signage

This data flow to an in-vehicle signage transmitter in an Other Roadway System provides the speed limit information for use in device control. This is the safe speed for vehicles based on current traffic conditions, environmental conditions, and local policy, and safe speed thresholds.

t_other_rw_work_zone_intrusion_detection

This data flow contains a time stamped indication from an intrusion detection sensor that an intrusion into the perimeter of the work zone has occurred. It consists of the following data item which is defined in its own DDE:

work_zone_intrusion_detection

taas-threat_data_for_analysis

This data flow is sent to Alerting and Advisory Systems and contains data collected and analyzed from surveillance and sensor equipment in secure areas and is intended to be used for further threat analysis.

taas-threat_info

This data flow is sent from the Manage Emergency Services function to Alerting and Advisory Systems and contains information about threats detected in the transportation network. This threat is based on analysis of data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area
+ threat_duration}

taas-threat_info_from_cvo

This data flow contains information about threats detected by commercial vehicle operators. The threats include incidents involving commercial vehicles (i.e. hijacking) or unusual activities observed by commercial vehicle operators (i.e. truck parked under a bridge). This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area}

taas-threat_info_from_freight

This data flow contains information about threats detected by freight equipment operators. The threats include incidents involving freight equipment (i.e. freight equipment tampering). This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area}

taas-traveler_image

This data flow is sent to Alerting and Advisory Systems to analyze information about surveillance video images obtained from another process. The images are checked against a database of known images (criminal elements). The data flow contains the

identity of an image that is being analyzed. The data flow consists of the following data item which is defined in its own DDE:

image_id

taas-traveler_image_matching_details

This data flow contains the results of image matching analysis. This flow indicates whether an image has matched an image in the database of known images. The image data is obtained from areas frequented by travelers, and from areas typically away from travelers. The data flow consists of the following data items each of which is defined in its own DDE:

timestamp
+ station_id
+ transit_vehicle_location
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ image_match_potential_confirmation
+ image_id

tada-archive_administration_data

This data flow is sent from the Manage Archive Data Administrator Interface function to the Archive Data Administrator terminator and contains the data and reports needed by the administrator to effectively manage the archive. This data flow could include database reports on the condition and health of the archive data, status on the import and collection process, and reports of requests from users systems for access to new data sources.

tada-data_collection_device_status

This data flow is sent from the Manage Archived Data function to the Archive Data Administrator and provides operational status (state of the device, configuration, and fault data) of data collection and monitoring equipment from the roadside. The sensor equipment includes environmental, HOV, pedestrian, traffic, multimodal crossing, reversible lane, and local sensors for roads and highways.

tadu-archive_analysis_results

This data flow from the Manage Archived Data function to the Archive Data Users Systems terminator contains the data, meta-data, or catalog data in response to a users systems request for data, or catalog data along with meta-data to support analysis activities such as data mining, data fusion, complex reports, aggregations, summaries, or recreating the original data.

tadu-archive_data_product

This data flow from the Manage Archived Data function to the Archive Data Users Systems terminator contains the data, meta-data, or catalog data in response to a users systems request. This data may include formatting done within the Manage Archived Data function or may be raw data from the archive that will be formatted by users external systems.

tadu-on_demand_confirmation

This data flow from the Manage Archived Data function to the Archive Data User System terminator contains the confirmation of whether the requested data will be imported into the archive and how the data will be identified.

tag_identity

This data flow is used by various ITS functions. It represents the identity number of a vehicle tag which can be used to various purposes, including preclearance from paying dues, taxes, and other commercial vehicles charges, or by a traveler or driver for payment of current or advanced tolls, fares, or parking lot charges, etc.

tam-archive_request

This data flow from the Manage Archived Data function contains the request for data collected and stored by Asset Management. The request can be a request for a catalog of the data held by Asset Management or a request for the data itself. This data flow consists of the following items each of which is defined in its own DDE:

asset_archive_catalog_request
+ asset_archive_data_request

tam-asset_archive_status

This data flow is sent from the Manage Archived Data function to Asset Management. It is the status returned when transportation asset archive data is sent to the Manage Archived Data function.

tam-asset_status_update_for_asset_mgmt

This data flow from the Manage Maintenance and Construction function to Asset Management contains the M&C data to be used in updating the status of assets in the inventory. The data contains information about work zones, maintenance needs, maintenance and construction schedules and status, etc. This data flow contains the following items each of which is defined in its own DDE:

m_and_c_activity_status_for_archive
+ m_and_c_activity_schedule_for_archive
+ m_and_c_roadway_maint_needs_for_archive
+ m_and_c_maint_resource_needs_for_archive
+ m_and_c_winter_maint_needs_for_archive
+ work_zone_data_for_archive
+ field_device_status_for_archive
+ auto_treatment_system_status_for_archive
+ infrastructure_data_for_archive

tam-infrastructure_data_for_analysis
This data flow consists of raw and processed data from the Manage Maintenance and Construction function to Asset Management regarding the condition of the infrastructure as reported from sensor equipment on the roadside and on-board maintenance and construction vehicles. This infrastructure includes bridges, culverts, signs, and other roadway infrastructure. By monitoring this data flow, Asset Management can assess the health of the infrastructure. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_data_for_m_and_c
+ mcv_infrastructure_sensor_data
+ processed_infrastructure_sensor_data

tbcv-disable_vehicle
This data flow contains analog output that initiates the disabling of a commercial vehicle.

tbia-archive_request
This data flow from the Manage Archived Data function to the Border Inspection Administration terminator contains the request for data collected and stored by the terminator that may be of interest to archived data users systems that is not included in data from sources within the ITS functions. This data flow includes request for a catalog of the information available as well as the request for the data itself. This data flow consists of the following items each of which is defined in its own DDE:

border_archive_catalog_request
+ border_archive_data_request

tbia-border_archive_status
This data flow is sent from the Manage Archived Data function to the Border Inspection Administration terminator. It is the status returned when border archive data is sent from the terminator to the Manage Archived Data function.

tbia-border_clearance_status
This data flow is sent to border inspection administration from the Manage Commercial Vehicle function. It contains the status of a commercial freight shipment moving across an international border. This data flow consists of the following data items each of which is defined in its own DDE:

cvo_border_clearance_info
+ cvo_border_status_from_other_cvas

tbia-border_client_information
This data flow contains data on a carrier or driver registering for a trade or border crossing program. This data may include the identity of the requesting client and information concerning the vehicles or cargo involved.

tbia-border_screening_results
This data flow contains the results of the screening checks performed on a commercial vehicle to be used by a border agency. This data may include the identity of the carrier, vehicle, driver, and its cargo.

tbia-fleet_expedited_clearance_request
This data flow is sent from a carrier to a border inspection administration requesting expedited clearance of a shipment across an international border. This data includes the necessary identification and data supporting the request.

tbia-fleet_manifest_data
This data flow is sent from a carrier to a border inspection administration and contains the cargo manifest including the destination, port of entry, and identities of the vehicle, cargo, driver, and carrier.

tbis-border_incident_information
This data flow is sent to a border inspection system and contains detailed incident information concerning incidents along a border region including response status of an incident at the border.

tbis-border_vehicle_onboard_clearance_data
This data flow contains trip specific data regarding the movement of goods across international borders to be transmitted to the border inspection facility. This may include the identities of the vehicle, driver, carrier, and cargo along with other cargo manifest data to support the inspection and clearance process.

tbis-traffic_border_incident
This data flow is used to send details of an incident from the Manage Traffic function to the Border Inspection Systems terminator and response to requests for lane management.

tbis-traffic_border_incident_video
This data flow contains current video images of incidents requested by the Border Inspection Systems terminator.

tbmcv-vehicle_system_control
This data flow is sent from the Manage Maintenance and Construction function to the Basic Maintenance and Construction Vehicle and is used by on-board ITS systems to control the maintenance and construction vehicle equipment. It includes control data to support materials applications and other functions depending upon the type of vehicle.

tbtv-transit_vehicle_disable_command

This data flow contains the command to disable a transit vehicle. Conditions where this command may occur include an incident in progress concerning the transit vehicle, such as a hijacking or armed robbery. This command would not be used for a less serious incident, such as an argument between passengers, or for a health emergency (e.g., heart attack) where the vehicle might be moving towards a hospital, or paramedics are on the way. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time

tbtv-transit_vehicle_disable_reset_command

This data flow contains the command to reset the transit vehicle for transit vehicle operator logon. Conditions where this command may occur include when the transit vehicle operator has entered a password too many times and the system has not accepted it for operator authentication (i.e., a threshold was reached), or if an incident was in progress and the transit vehicle was disabled, but the incident is now over and the disabling is to be cancelled. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time

tbv-change_brake_setting

This data flow contains analog output which alters the vehicle's wheel brake setting. The output can completely release the brake or apply the brake to a set amount.

tbv-change_direction

This data flow is sent to the basic vehicle from the Provide Vehicle Monitoring and Control function and contains analog output which changes the vehicle's direction of motion between forward, reverse and neutral.

tbv-change_throttle_setting

This data flow contains analog output which alters the vehicle's throttle setting. The output can close the throttle and cause the throttle to be opened to the a value.

tbv-deploy_crash_restraints

This data flow is sent to the basic vehicle from the Provide Vehicle Monitoring and Control function and contains analog output which initiates the deployment of the vehicle's crash restraint devices.

tbv-har_broadcast

This data flow contains the output of a Highway Advisory Radio (HAR) operating at the roadside on either highways or road (surface street) in the geographic and/or jurisdictional area(s) served by the function. This output, the HAR program, is broadcast to an existing communications device (e.g. AM Radio) in a vehicle.

tbv-steer_left

This data flow is sent to the basic vehicle from the Provide Vehicle Monitoring and Control function and is used to provide analog output which steers the vehicle to the left.

tbv-steer_right

This data flow is sent to the basic vehicle from the Provide Vehicle Monitoring and Control function and is used to provide analog output that will steer a vehicle to the right.

tbv-steer_straight

This data flow is sent to the basic vehicle from the Provide Vehicle Monitoring and Control function and is used to provide analog output which centralizes the vehicle's steering from a steer left or steer right position.

tbv-vehicle_security_system_commands

This data flow is sent from the Provide Communications Function to control security systems in the vehicle. It is comprised of the following item which is defined in its own DDE:

vehicle_security_system_commands

tcf-care_facility_disaster_data

This data flow sends disaster data to the care facility. It allows the facility to prepare the appropriate resources for expected patients. It consists of the following data item which is defined in its own DDE:

emergency_input_for_disaster
+ evacuation_status_for_disaster_response

tcf-care_facility_status_request

This data flow requests information regarding the current status of hospital emergency rooms including if the hospital is accepting new arrivals, staff on call, waiting times, type of care currently available, specialized services (trauma, burn units), etc.

tcf-care_facility_status_request_for_disaster

This data flow requests information regarding the current status of hospital emergency rooms including if the hospital is accepting new arrivals, staff on call, waiting times, type of care currently available, specialized services (trauma, burn units), etc.

tcf-care_facility_vehicle_status_request

This data flow requests the request for information regarding the current status of the emergency care facility. This information is requested by the emergency personnel on-board the vehicle.

tcf-emergency_vehicle_patient_status_update
This data flow represents the information regarding the current status of an emergency patient enroute to a care facility. It is provided from the emergency personnel on-board the vehicle.

tci-credentials_data_output
This data flow is sent to the commercial vehicle inspector from the Manage Commercial Vehicles function and contains the formatted output of the previously requested credentials for a particular combination of carrier, driver and vehicle.

tci-inspection_report
This data flow is sent to the commercial vehicle inspector from the Manage Commercial Vehicles function and contains the formatted output of the results of the commercial vehicle roadside inspection previously initiated by the inspector.

tci-output_log_report
This data flow is sent to the commercial vehicle inspector from the Manage Commercial Vehicles function and contains the commercial vehicle roadside checking facility log showing which vehicles have been stopped, passed, or pulled-in by the inspectors.

tci-pull-in_information
This data flow is sent to the commercial vehicle inspector from the Manage Commercial Vehicles function and contains details of the pull-in or pass decision made as a result of the safety or preclearance processing for a commercial vehicle. The inspector can override this decision if needed.

tci-safety_data_output
This data flow is sent to the commercial vehicle inspector from the Manage Commercial Vehicles function and contains the formatted output of the safety data for a particular carrier, driver or vehicle. This data will have been previously requested by the commercial vehicle roadside inspector.

tcvd-border_pull_in_output
This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicle function and represents the actual message to be conveyed to the driver of a commercial vehicle that is being pulled in to a roadside facility for border clearance (permits, duties, trip number, etc.) reasons.

tcvd-clearance_pull_in_output
This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicle function and represents the actual message to be conveyed to the driver of a commercial vehicle that is being pulled in to a roadside facility for clearance (permits duties, etc.) reasons.

tcvd-confirm_data_stored
This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicles function and contains confirmation that the previously entered data has been stored in the on-board vehicle unit.

tcvd-critical_safety_problem
This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicle function and contains details of any commercial vehicle on-board safety problems which have been detected by processes within the function.

tcvd-critical_security_problem
This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicle function and contains details of any commercial vehicle on-board security problems which have been detected.

tcvd-data_input_request
This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicles function and contains the request for the driver to input data for the type of data previously requested. It is part of a data input dialogue that the driver has with the vehicle's on-board data collection system.

tcvd-data_request
This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicles function and contains a request for the input of additional data to allow a previously requested action to be implemented. Drivers will receive this data in response to previous data input because they are acting on the role of their own fleet managers, i.e. they will be owner drivers.

tcvd-enrollment_confirmation
This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicles function and contains confirmation that a request for the enrollment of a particular class of vehicle and cargo at a particular weight on a particular route has been accepted and includes a list of the required taxes and duties together with their costs. Drivers will receive this data in response to previous data input because they are acting on the role of their own fleet managers, i.e. they will be owner drivers.

tcvd-enrollment_payment_confirmation
This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicles function and contains confirmation that a payment for the enrollment of a particular class of vehicle and cargo at a particular weight on a particular route has been accepted. Drivers will receive this data in response to previous data input because they are acting on the role of their own fleet managers, i.e. they will be owner drivers.

tcvd-general_pull_in_output

This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicle function. It represents the actual message to be conveyed to the driver of a vehicle that is being pulled in to a commercial vehicle roadside checking facility for general reasons using roadside displays, e.g. dynamic message signs (dms), etc.

tcvd-inspection_results
This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicles function and represents a message to the driver of a commercial vehicle that provides the results of an inspection at a commercial vehicle roadside check facility.

tcvd-on_board_pull_in_output
This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicle function. It represents the message to be sent to the driver of a vehicle that is being pulled in to a commercial vehicle roadside checking facility. This may be because problems with credentials, safety, or reading data from the tag of a particular vehicle, or a general pull-in request for all vehicles. It may also be output by a commercial vehicle roadside border crossing facility due to a problem with clearing a vehicle through a border crossing check point. The data will be output directly to the driver in the vehicle cab and not using any mechanism external to the vehicle.

tcvd-other_data_request
This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicles function and contains the identities of data items needed to complete all the data needed for a route to be stored in the data store, of commercial vehicle routes, but which have yet to be provided by the driver. Drivers will receive this data in response to previous data input because they are acting on the role of their own fleet managers, i.e. they will be owner drivers.

tcvd-output_data
This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicle function and contains the data output previously requested by a commercial vehicle driver.

tcvd-output_tag_data
This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicles function. It contains the output of the current contents of a commercial vehicle's type two tag, produced in response to a previous request from the driver.

tcvd-route_data
This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicles function and contains details of a route for a commercial vehicle, together with the location and type of each roadside facility along the route. Drivers will receive this data in response to previous data input because they are acting on the role of their own fleet managers, i.e. they will be owner drivers.

tcvd-routing_instructions
This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicles function and contains details of a route for a commercial vehicle, together with instructions about cargo that is to be picked up and/or dropped off at the origin, destination and/or intermediate points along the route.

tcvd-safety_pull_in_output
This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicles function and represents the actual message to be conveyed to the driver of a commercial vehicle that is being pulled in to a roadside facility for safety reasons.

tcvd-type_input_request
This data flow is used within the Manage Commercial Vehicles and contains a request for data from the commercial vehicle driver for processing prior to bypassing or being requested to pull in to an inspection/verification stop.

tcvoir-credential_status
This data is sent from the Manage Commercial Vehicles function to the commercial vehicle operations information requestor. It contains credential information such as registration, licensing, insurance, check flags, and electronic screening enrollment data about a commercial vehicle or carrier.

tcvoir-credentials
This data flow contains consists of full credentials information.

tcvoir-cv_carrier_participation_report
This data is sent from the Manage Commercial Vehicles function to the commercial vehicle operations information requestor. It describes a motor carrier's participation in commercial vehicle operations programs. It consists of the following items each of which is defined in its own DDE:

cv_carrier_number
+ carrier_participation_details

tcvoir-driver_record
This data flow provides an authorized CVO Information Requestor with detailed information concerning a commercial vehicle driver. This flow is made up of the following items each of which is defined in its own DDE:

cv_driver_number
+ cv_driver_credentials
+ cv_driver_license_citations
+ cvo_citation_data
+ cvo_violation

+ cv_driver_identity_characteristic_key

tcvoir-safety_status
This data is sent from the Manage Commercial Vehicles function to the commercial vehicle operations information requestor. It contains safety information such as safety ratings, inspection summaries, and violation summaries about a commercial vehicle or carrier.

td-advisory_information
This data flow is sent to the driver from the Provide Driver and Traveler Services function. It contains displays of the various types of traffic and travel information messages available to the driver. This information will only be output following a specific request or traveler information alert subscription from the driver and will be filtered to only include that which is relevant to the vehicle's current location.

td-broadcast_information
This data flow is sent to the driver from the Provide Driver and Traveler Services function. It contains displays of the various types of broadcast information which can be output to the driver. This information will comprise but not be limited to such things as safety warnings, position warnings, enhanced vision, vehicle status, data from vehicle probes, etc.

td-dms_indication
This data flow is sent to the driver by the Manage Traffic function and contains a textual message either warning drivers of a potential hazard, or providing mandatory instructions as to the availability of all or part of a freeway or road (surface street) served by the function.

td-driver_vehicle_access_status
This data flow is sent to the driver and represents and auditory or visual indication that the driver's vehicle has or has not been granted access to a secure area or facility.

td-driving_guidance
This data flow is sent to the driver from the Provide Driver and Traveler Services function and contains output (displays - text and/or graphics, and/or audio based information) which gives the driver instructions on how to steer the vehicle, e.g. turn left at the next intersection, take the middle lane, fork right at the next intersection, etc.

td-dynamic_lane_control
This data flow is sent to the driver by the Manage Traffic function and contains information for drivers about dynamic lane assignments including permission to use the shoulder for driving.

td-guidance_input_request
This data flow is sent to the driver from the Provide Driver and Traveler Services function and contains a request for the input of a specific item of data needed to determine the vehicle route for on-line guidance. The data may comprise such things as the destination, preferred arrival time, plus route choice preferences and constraints.

td-guidance_map_update_response
This data flow is sent to the driver from the Provide Driver and Traveler Services function and contains the response to a previous request for the update of the digitized map data used to provide on-line vehicle guidance.

td-guidance_route_details
This data flow is sent to the driver from the Provide Driver and Traveler Services function and contains details of the route that has been selected in response to the driver's request for on-line guidance. The route and choice of guidance method will have been based on previous input from the driver. Guidance will not begin until the driver has positively accepted this data.

td-information_for_drivers_in_traffic_FB
This data flow is used by the Manage Traffic function to send data to vehicles on the roads (surface streets) and highways. This data provides both instructions (traffic signal outputs and mandatory messages) and advisory information (incident warnings) to vehicle drivers produced by the traffic management facilities within the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

td-dms_indication
+ td-intersection_safety_data
+ td-lane_use_indication_for_highways
+ td-lane_use_indication_for_roads
+ td-ramp_state_indication
+ td-signal_indication
+ td-roadway_warning

td-intersection_safety_data
This data flow is sent to the driver by the Manage Traffic function and includes instructions and warnings that a driver is approaching an intersection too fast or that there is an obstacle in the intersection, or that another vehicle is approaching in such a way that a crash is imminent.

td-lane_use_indication_for_highways
This data flow is sent to the driver by the Manage Traffic function and contains an indication that a particular vehicle lane on a freeway served by the function is available for use (green) or closed to vehicle use (red).

td-lane_use_indication_for_roads
This data flow is sent to the driver by the Manage Traffic function and contains an indication that a particular vehicle lane on a road (surface street) served by the function is available for use (green) or closed to vehicle use (red).

td-mcv_on_board_display
This data flow represents the display to a driver of work zone advisory information via a roadway information device (e.g. a Dynamic Message Sign) that is on-board a maintenance and construction vehicle.

tdmv-emissions_violation_identity_code
This data flow is sent to the department of motor vehicles from the Manage Emergency Services function and contains the identity code of the ITS that is requesting the vehicle registration data so pollution violation can be processed.

tdmv-emissions_violation_vehicle_license
This data flow is sent to the department of motor vehicles from the Manage Emergency Services function and contains the vehicle license for which the corresponding registration data is required so that a pollution violation can be processed.

tdmv-parking_lot_violation_identity_code
This data flow is sent to the department of motor vehicles from the Manage Emergency Services function and contains the identity code of the ITS that is requesting the vehicle registration data so that a parking lot payment violation can be processed.

tdmv-parking_lot_violation_vehicle_license
This data flow is sent to the department of motor vehicles from the Manage Emergency Services function and contains the vehicle license for which the corresponding registration data is required so that a parking lot payment violation can be processed.

tdmv-toll_violation_identity_code
This data flow is sent to the department of motor vehicles from the Manage Emergency Services function and contains the identity code of the ITS that is requesting the vehicle registration data so that a toll payment violation can be processed.

tdmv-toll_violation_vehicle_license
This data flow is sent to the department of motor vehicles from the Manage Emergency Services function and contains the vehicle license for which the corresponding registration data is required so that a toll payment violation can be processed.

tdmv-traffic_violation_identity_code
This data flow is sent to the department of motor vehicles from the Manage Emergency Services function and contains the identity code of the ITS that is requesting the vehicle registration data so that a high occupancy vehicle (hov) lane be processed.

tdmv-traffic_violation_vehicle_license
This data flow is sent to the department of motor vehicles from the Manage Emergency Services function and contains the vehicle license for which the corresponding registration data is required so that a high occupancy vehicle (hov) lane violation can be processed.

tdmv-vmt_identity_code
This data flow is sent from the Provide Open Road Tolling function to the Department of Motor Vehicles (DMV) and contains the identity code of the ITS that is requesting the vehicle registration data so that a road use charging violation can be processed.

tdmv-vmt_vehicle_license
This data flow is sent from the Provide Open Road Tolling function to the Department of Motor Vehicles (DMV) and contains the vehicle license for which the corresponding registration data is required so that a road use charging violation can be processed.

td-other_services_parking_response
This data flow is sent to the driver from the Provide Driver and Traveler Services function and contains the response to the traveler's previously input request for additional services other than simple parking lot charge collection.

td-other_services_toll_response
This data flow is sent to the driver from the Provide Driver and Traveler Services function and contains the response to the traveler's previously input request for additional services other than simple toll collection.

td-parking_information
This data flow consists of information given to drivers as they enter, exit, and proceed through a parking facility. This may include static information like hours of operation, or dynamic information such as the location of available spaces.

td-parking_lot_payment_confirmed
This data flow is sent to the driver from the Provide Driver and Traveler Services function to confirm that the parking lot payment transaction has been successfully completed.

td-parking_lot_payment_invalid
This data flow is sent to the driver from the Provide Driver and Traveler Services function to indicate that the parking lot payment transaction is invalid.

td-ramp_state_indication
This data flow is sent to the driver by the Manage Traffic function and contains an indication that a particular highway entrance ramp is available for use (green) or closed to vehicle use (red).

td-roadway_warning

This data flow is sent to the driver by the Manage Traffic function and contains warnings concerning potential roadway hazards, e.g., roadway weather conditions, road surface conditions, traffic congestion and queues, obstacles in the roadway.

td-signal_indication
This data flow is sent to the driver by the Manage Traffic function and contains instructions for drivers to stop their vehicles (red), prepare to stop their vehicles (amber), or that they have permission to proceed (green) along the road or highway.

td-toll_payment_confirmed
This data flow is sent to the driver from the Provide Driver and Traveler Services function to confirm that the toll payment transaction has been successfully completed.

td-toll_payment_invalid
This data flow is sent to the driver from the Provide Driver and Traveler Services function to indicate that the toll payment transaction is invalid.

td-traffic_advisory_from_mcv
This data flow is sent to the driver by the Manage Maintenance and Construction function and contains a textual message either warning drivers of maintenance and construction activities or providing instructions to the driver regarding lane availability.

td-vehicle_occupants_detected
This data flow informs the driver how many occupants (driver + passengers) have been detected on-board; providing the same information being transmitted to roadside devices.

td-vmt_cost_data
This data flow is sent to the driver from the Provide Open Road Tolling function. It contains real-time information about link and/or trip costs.

td-vmt_payment_confirmation
This data flow is sent to the driver from the Provide Open Road Tolling function. It contains confirmation of traveler card payment of road use charges.

td-work_zone_intrusion_alert
This data flow is sent to the driver and represents an auditory or visual alert that the driver's vehicle has intruded upon a work zone, or is about to intrude upon a work zone. The auditory alert may constitute a siren, or other type of alarm. The visual alert could include textual messages, or flashing lights/signage.

td-work_zone_intrusion_alert_from_mcv
This data flow is sent to the driver and represents an auditory or visual alert that the driver's vehicle is approaching too close to a maintenance and construction vehicle. The auditory alert may constitute a siren, or other type of alarm. The visual alert could include textual messages, or flashing lights/signage.

tea-accident_data
This data flow is sent from the Manage Emergency Services function to the enforcement agency and contains information about a commercial vehicle accident that have been detected by the Manage Commercial Vehicles function. The data in the flow will enable the notified enforcement agency to take the appropriate action regarding the accident.

tea-cv_carrier_participation_report
This data is sent from the Manage Commercial Vehicles function to an appropriate Enforcement Agency. It describes a motor carrier's participation in commercial vehicle operations programs. It consists of the following items each of which is defined in its own DDE:

cv_carrier_number
+ carrier_participation_details

tea-cv_citation_data
This data flow is sent from the Manage Emergency Services function to the enforcement agency and contains information about violations of commercial vehicle electronic credential and tax filing payment procedures etc. that have been detected by the Manage Commercial Vehicles function. The data in the flow will enable the notified enforcement agency to take the appropriate action against those committing the violation.

tea-cv_safety_inspection
This data flow is sent to an Enforcement Agency from the Manage Commercial Vehicle function. It contains a report of commercial vehicle safety inspections.

tea-cv_violation_data
This data flow is sent from the Manage Emergency Services function to the enforcement agency and contains information about violations of commercial vehicle electronic credential and tax filing payment procedures etc. that have been detected by the Manage Commercial Vehicles function. The data in the flow will enable the notified enforcement agency to take the appropriate action against those committing the violation.

tea-cvo_violation
This data flow is used within the Commercial vehicle function. It contains notification information to enforcement agencies about a violation generated directly in the field. It describes the statute or regulation that was violated, how it was violated, and who violated it.

tea-emissions_violation_data

This data flow is sent from the Manage Emergency Services function to the enforcement agency and contains information pollution violations that have been detected by processes within the Manage Traffic function. The data in this flow will enable the notified enforcement agency to take the appropriate action against those committing the violations.

tea-enforcement_request_from_m_and_c

This data flow contains a request for speed enforcement based upon collecting vehicle speed data that is in excess of the posted speed limit or are creating an unsafe condition based upon the current environmental conditions. The data flow would contain the location where speed enforcement is needed and could contain detailed information of the vehicle speeds collected from sensors at the roadway or a report of aggregated speeds.

tea-enforcement_request_from_traffic

This data flow contains a request for speed enforcement based upon collecting vehicle speed data that is in excess of the posted speed limit or are creating an unsafe condition based upon the current environmental conditions. The data flow would contain the location where speed enforcement is needed and could contain detailed information of the vehicle speeds collected from sensors at the roadway or a report of aggregated speeds.

tea-fare_collection_roadside_violation_data

This data flow is sent from the Manage Emergency Services function to the enforcement agency responsible for dealing with transit fare collection violations. It contains information about a collection violation that has been detected by the Manage Transit function at the roadside, i.e. the transit stop. The data in the flow will enable the notified enforcement agency to take the appropriate action against those who have committed the violation.

tea-fare_collection_vehicle_violation_data

This data flow is sent from the Manage Emergency Services function to the enforcement agency responsible for dealing with transit fare collection violations. It contains information about a collection violation that has been detected by the Manage Transit function on-board the transit vehicle. The data in the flow will enable the notified enforcement agency to take the appropriate action against those who have committed the violation.

tea-fare_payment_violation_data

This data flow is sent from the Manage Emergency Services function to the enforcement agency and contains information about fare payment violations that have been detected by the Manage Transit and/or Provide Electronic Payment Services functions. The data in the flow will enable the notified enforcement agency to take the appropriate action against those committing the

tea-lane_violation_notification

This dataflow is sent from the Manage Traffic function to the enforcement agency and contains vehicle-specific information about dynamic lane violations.

tea-lane_violation_notification_from_roadway

This dataflow is sent from the Manage Traffic function to the enforcement agency and contains vehicle-specific information about dynamic lane violations collected at the roadway.

tea-parking_violation_data

This data flow is sent from the Manage Emergency Services function to the enforcement agency and contains information about parking lot charge payment violations that have been detected by the Provide Electronic Payment Services function. The data in the flow will enable the notified enforcement agency to take the appropriate action against those committing the violation.

tea-request_lane_enforcement

This data flow contains a request for lane enforcement based upon collecting dynamic lane management data that is outside the parameters for safe operation based upon the current traffic conditions. The data flow would contain the location where lane enforcement is needed and could contain detailed information collected from sensors at the roadway.

tea-request_shoulder_enforcement

This data flow contains a request for shoulder enforcement based upon collecting dynamic shoulder management data that is outside the parameters for safe operation based upon the current traffic conditions. The data flow would contain the location where shoulder enforcement is needed and could contain detailed information collected from sensors at the roadway.

tea-shoulder_violation_notification

This dataflow is sent from the Manage Traffic function to the enforcement agency and contains vehicle-specific information about shoulder lane use violations.

tea-shoulder_violation_notification_from_roadway

This dataflow is sent from the Manage Traffic function to the enforcement agency and contains vehicle-specific information about shoulder lane use violations collected at the roadway.

tea-speed_sensor_status

This data flow provides a report of the status of a set of speed sensors. The status flow provides the sensor configuration as well as a fault indication. By monitoring this data flow, the receiving process can monitor the health and current status of the field equipment. It consists of the following data items each of which are defined in its own DDE:

list_size + list_size{sensor_identity
+ sensor_device_status}

tea-speed_violation_notification
This data flow contains the information needed to identify that a speed violation has occurred. It would contain a timestamp, the speed of the vehicle, and some form of identification of the vehicle, such as a vehicle image of sufficient resolution to uniquely identify the vehicle (e.g. by license plate identification).

tea-toll_violation_data
This data flow is sent from the Manage Emergency Services function to the enforcement agency and contains information about toll violations that have been detected by processes in the Provide Electronic Payment Services function. The data in the flow will enable the notified enforcement agency to take the appropriate action against those committing the violation.

tea-traffic_violation_data
This data flow is sent from the Manage Emergency Services function to the enforcement agency and contains information about high occupancy vehicle (hov) lane use that have been detected by processes within the Manage Traffic function. The data in this flow will enable the notified enforcement agency to take the appropriate action against those committing the violations.

tea-vmt_equipment_failure
This data flow is sent from the Provide Open Road Tolling function to the Enforcement Agency and contains equipment fault information for in-vehicle Vehicle Miles Traveled (VMT) road use charge equipment for use in enforcement of roadway

telecomm_traveler_information
This data store is used within the Provide Driver and Traveler Services function and contains traveler information for 511-type systems including traffic conditions, work zone and roadway maintenance information, roadway environment conditions, weather and event information, transit schedules, deviations, and fares, yellow pages information, border crossing information, current ferry and rail schedules, and airport status. It consists of the following data items each of which is defined in its own DDE:

traveler_telecomm_interactive_traffic_data
+ traveler_telecomm_interactive_border_data
+ traveler_telecomm_interactive_event_information
+ traveler_telecomm_interactive_multimodal_data
+ traveler_telecomm_interactive_transit_data
+ traveler_telecomm_interactive_incident_information
+ traveler_telecomm_interactive_weather_data
+ traveler_telecomm_interactive_parking_data
+ traveler_telecomm_interactive_price_data
+ traveler_telecomm_travel_services_data
+ traveler_telecomm_emergency_traveler_information
+ traveler_telecomm_evacuation_traveler_information
+ traveler_telecomm_transportation_system_status

temo-pollution_data_display
This data flow is sent by the Manage Traffic function to the emissions operations personnel. It contains details of the pollution reference data, the current pollution state in the geographic area served by the ITS functions, and the operational status of pollution sensors. It also includes information on current and forecasted weather conditions.

temo-vehicle_emissions_data
This data flow is sent by the Manage Traffic function to the emissions operations personnel. It contains details of the emissions reference data, the current vehicle emissions data collected by sensors, and the operational status of those sensors.

tep-barrier_system_status
This data flow is sent to the emergency personnel and is used to report the status of barrier systems (gates and other automated systems for roadway entry control).

tep-decision_support
This data flow presents information to emergency personnel in the field that is necessary to support an effective incident response. It includes local traffic, road, and weather conditions, hazardous material information, and the current status of resources that have been allocated to the incident.

tep-emergency_dispatch_order
This data flow is sent to the emergency personnel from the Manage Emergency Services function and is the order for the emergency personnel to proceed. It includes data on the emergency vehicle identity, the incident type and its location.

tep-incident_command_information_presentation
This primitive data flow contains information to be presented to local tactical decision-making by emergency personnel at the incident site. It contains information regarding resource status, hazardous material information, and other incident related information.

terf-basic_mcv_measures_for_equip_repair
This data flow contains the operational status of various systems on the maintenance and construction vehicle, including brake wear, engine temperature, mileage, tire wear, belt wear, engine and brake system status, and safety system status to be presented to an equipment repair facility. This data flow also includes maintenance and construction vehicle location data. It consists of the following data item which is defined in its own DDE:

vehicle_id_for_mcv
+ vehicle_location_for_mcv
+ vehicle_system_status

terf-fleet_maintenance_availability

This data flow is sent from the Manage Maintenance and Construction function to the equipment repair facility and contains information on when the maintenance and construction vehicles will be available for preventive and corrective maintenance. The data flow consists of the following data item which is defined in its own DDE:

fleet_maintenance_availability

terf-mdss_recommended_actions

This data flow is sent from the Manage Maintenance and Construction function to the equipment repair facility and contains recommended actions for preparing the equipment, such as reconfiguring the vehicles to support specific maintenance and construction activities.

terf-vehicle_utilization_information

This data flow is sent from the Manage Maintenance and Construction function to the equipment repair facility and contains information on maintenance and construction vehicle utilization to assist in predicting vehicle repair or replacement needs. The data flow consists of the following data item which is defined in its own DDE:

vehicle_utilization_information

teso-alerts_and_advisories

This data flow is sent to the Emergency System Operator and contains alert notification and advisory information of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction and to be on the look out for certain conditions.

teso-archive_status

This data flow is sent to the Emergency System Operator and contains the status received by Emergency Management from the Manage Archived Data function after data was sent from Emergency Management to the Manage Archived Data function for archival. The status may be good (the data was correct and received without error) or bad (errors were either found in the data itself or during the transmission of the data).

teso-emergency_action_log_output

This data flow is sent to the emergency system operator by the Manage Emergency Services function and contains the response to an operator command for output of the contents of the emergency services action log. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output.

teso-emergency_data_output

This data flow is sent to the emergency system operator by the Manage Emergency Services function and contains the response to an operator command for output of data about emergency service allocations. The data that is output may be details of a recently completed emergency services allocation, data and status collected from environmental probes onboard emergency vehicles, or the contents of the allocation criteria store. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output.

teso-emergency_request

This data flow is sent to emergency system personnel from the Manage Emergency Services function to inform the personnel that a traveler or transit vehicle operator has requested emergency assistance - either by activation of a silent alarm or through a mayday request.

teso-emergency_routing_information

Presentation of current routing status, current vehicle routes, road network conditions that may influence selected routes, and current preemption status.

teso-emergency_vehicle_dispatch_failure

This data flow is sent to the emergency system operator by the Manage Emergency Services function and contains details of an emergency services vehicle dispatch that has failed. Details of the type(s) of vehicle requested and the number that has been dispatched (if any) are provided. The output may be in audio and visual forms, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output.

teso-image_match

This data flow is sent to emergency system personnel by the Manage Emergency Services function and contains the results of image matching analysis from the secure area served by the local function. This data is sent to the process from another process that performs the image matching analysis. This data flow indicates whether an image has matched the database of known images. The image data is obtained from areas frequented by travelers, and from areas typically away from travelers. The data flow consists of the following data items each of which is defined in its own DDE:

timestamp
+ station_id
+ transit_vehicle_location
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ image_match_confirmation
+ image_id

teso-secure_area_sensor_surveillance_information
This data flow is sent from the Manage Emergency Services function to the Emergency System Operator and contains data and status collected from sensor and surveillance equipment in secure areas, including those frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) or areas typically away from travelers (i.e., bridges, tunnels, and other infrastructure). This data flow also includes results of data processing and analysis for detection of threats.

teso-wide_area_alert_status
This data flow is sent to the Emergency System Operator and contains the status of an alert notification as well as the information systems used to provide the alert notification.

tets-incident_acknowledge
This data flow acknowledges the receipt of incident information, requests additional information, and provides general information on response status.

tets-incident_information_dissemination
Report of an incident to be disseminated to the local community; includes nature of the incident and pertinent geographic area.

tevp-event_confirmation
This data flow is sent from the Manage Traffic function to event promoters and is the confirmation that the previously submitted details of an event have been accepted as a possible incident.

tevp-event_confirmation_from_transit
This data flow is sent to the Event Promoters terminator and is the confirmation that the previously submitted event data has been accepted.

tevp-event_information_request
This data flow is sent by the Provide Driver and Traveler Services function to event promoters to request updated information about events.

tevp-planned_event_confirmation
This data flow is sent to the event promoters terminator and is the confirmation that the previously submitted event data has been accepted.

tfe-integrity_monitoring_parameters
This data flow contains the configuration parameters for freight equipment. The parameters configure the sensors which are used to monitor integrity characteristics (breach or tamper events) of freight equipment. They also setup the reporting schedule, which can be event driven (i.e. container removed from a chassis), situational based (i.e. every 30 minutes when connected to a commercial vehicle) or a maximum period between transmissions (i.e. 24 hours since last transmission to serve as a 'heartbeat'

tfe-operational_monitoring_parameters
This data flow contains the configuration parameters for freight equipment. The parameters configure the sensors which are used to monitor maintenance and operational characteristics of the freight equipment. They also setup the reporting schedule, which can be event driven (i.e. container removed from a chassis), situational based (i.e. every 30 minutes when connected to a commercial vehicle) or a maximum period between transmissions (i.e. 24 hours since last transmission to serve as a 'heartbeat'

tffm-assignment_alert
This data flow provides the fleet-freight manager information about an alert due to an assignment mismatch between the driver, commercial vehicle and freight equipment.

tffm-confirm_enrollment_data_stored
This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function and contains confirmation that the previously entered enrollment data has been stored in the on-board vehicle unit.

tffm-data_input_request
This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function and contains the identities of data items needed for a route request to be made, but which have not been provided by the manager.

tffm-driver_route_instructions
This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function. It contains the output of the current instructions that have been loaded into a store for use by a commercial vehicle driver. They will enable the driver to follow a specified route picking up and dropping off cargo along the way.

tffm-enrollment_confirmation
This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function and contains confirmation that a request for the enrollment of a particular class of vehicle and cargo at a particular weight on a particular route has been accepted and includes a list of the required taxes and duties together with their costs.

tffm-enrollment_payment_confirmation
This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function and contains confirmation that a payment for the enrollment of a particular class of vehicle and cargo at a particular weight on a particular route has been accepted.

tffm-freight_data_input_request
This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function. It contains the status of a freight transportation booking and freight equipment maintenance in which a manager's input is required to proceed.

tffm-freight_integrity_alert
This data flow provides the fleet-freight manager information about an alert due to a breach or tamper event involving freight equipment.

tffm-freight_route_alert
This data flow provides the fleet-freight manager information about an alert due to a route deviation for freight equipment.

tffm-incident_alert
This data flow provides the fleet-freight manager information about an alert due to a breach or tamper event and deviations from a planned route involving a commercial vehicle. It includes information regarding a driver, commercial vehicle and freight equipment assignment mismatches.

tffm-other_data_request
This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function and contains the identities of data items needed to complete all the data needed for a route to be stored in the data store of commercial fleet routes, but which have yet to be provided by the manager.

tffm-output_tag_data
This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function It contains the output of the current contents of a commercial vehicle's type two tag, produced in response to a previous request from the manager.

tffm-preclearance_results
This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function and contains the route number, route details and a list of roadside facilities for which preclearance has been obtained.

tffm-roadside_activity_report
This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function. It contains the output of the commercial vehicle roadside checkstation facility logs showing the activities of a particular carrier, driver and vehicle combination.

tffm-route_data
This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function and contains details of a route for a commercial vehicle, together with the location and type of each roadside facility along the route.

tfi-archive_analysis_payment_request
This data flow is sent to the financial institution from the Manage Archived Data function. It contains a request from an archive data user system for payment for the use of archive data analysis products.

tfi-archive_payment_request
This data flow is sent to the financial institution from the Manage Archived Data function. It contains a request from an archive data user system for payment for the use of archive data products.

tfi-cv_payment_request
This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains a request from a commercial fleet manager or commercial vehicle driver (acting in the role of fleet manager) for payment of electronic credentials and tax filing.

tfi-driver_display_payment_request
This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains a request from a traveler for payment for the update of the digitized map data used as the background for displays of traffic and travel information on a device onboard a vehicle.

tfi-driver_map_payment_request
This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains a request from a driver for payment for the update of the digitized map data used for on-line vehicle guidance.

tfi-fare_payment_violator_data
This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains data about a transit fare payment transaction that was attempted but did not work and is to be used by the Financial Institution.

tfi-other_services_payment_request
This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains a request from a traveler (including a user of the transit system) for payment for other (yellow pages) services.

tfi-parking_lot_payment_violator_data
This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains data about a toll payment transaction that was attempted but did not work and is to be used by the Financial Institution.

tfi-registration_payment_request
This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains a request from a travel services provider for payment to register as a supplier of these services and have details of them made available to

travelers (including users of the transit system).

tfi-request_charges_payment
This data flow is sent to the Financial Institution by the Provide Electronic Payment Services function and requests payment of a parking lot charge. It is sent periodically, e.g. once per day, and requests payment of the parking lot charge transactions since the previous request. The data flow will include the parking lot charge and credit identity for each transaction.

tfi-request_fare_payment
This data flow is sent to the Financial Institution by the Provide Electronic Payment Services function and requests payment of a transit fare. It is sent periodically, e.g. once per day, and requests payment of the transit fare transactions since the previous request. The data flow will include the transit fare cost and credit identity for each transaction.

tfi-request_toll_payment
This data flow is sent to the Financial Institution by the Provide Electronic Payment Services function. It is sent periodically, e.g. once per day, and requests payment of the toll transactions since the previous request. The data flow will include the toll cost and credit identity for each transaction.

tfi-request_vmt_payment
This data flow is sent to the Financial Institution by the Provide Open Road Tolling function. It contains information to reconcile vehicle owner or operator road charge information to obtain payment for the center.

tfi-toll_payment_violator_data
This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains data about a parking lot payment transaction that was attempted but did not work and is to be used by the Financial Institution.

tfi-traveler_display_payment_request
This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains a request from a traveler for payment for the update of the digitized map data used as the background for displays of traffic and travel information on a traveler's personal device.

tfi-traveler_map_payment_request
This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains a request from a traveler for payment for the update of the navigable map database used for on-line personal guidance.

tfi-traveler_other_services_payments_request
This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It a request from a traveler for payment for other (yellow pages) services.

tfi-traveler_rideshare_payment_request
This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains a request from a traveler for payment for the provision of rideshare services as part of a confirmed trip.

tgrs-government_data_report_input
This data flow from the Manage Archived Data function to the Government Reporting Systems terminator. This data flow contains the meta data and data from the archive that can be used to prepare the input to Government reporting systems. The data will allow user defined products to be generated for systems that include Highway Performance Monitoring System (HPMS), Truck Weight Study/VTRIS, National Bridge Inventory, Fatal Accident Reporting System (FARS), Highway Safety Information System (HSIS), Section 15 Transit Data, Motor Carrier Management Information System (MCMIS), Hazardous Materials Incident Reporting System, Grade Crossing Inventory System (GCIS), and Railroad Accident/Incident Reporting System (RAIRS; grade crossing portion).

threat_analysis_parameters
This data flow is sent from a process that interfaces with center personnel to another process within the Manage Emergency Services function, and contains processing parameters to guide the automated analysis of data for detection of threats.

threat_analysis_results
This data flow contains detailed results of threat analysis performed on data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and other emergency centers. This data flow includes the analysis input parameters, the sources of the collected data and timestamps, as well as the final analysis results.

threat_and_infrastructure_info_for_traffic
This data flow is used to send threat information and infrastructure integrity status data from the Manage Emergency Services function to the Manage Traffic function. The data flow consists of the following items each of which is defined in its own DDE:

threat_info_for_traffic
+ infrastructure_integrity_status_for_traffic

threat_and_infrastructure_info_for_transit
This data flow is used to send threat information and infrastructure integrity status data from the Manage Emergency Services function to the Manage Transit function. The data flow consists of the following items each of which is defined in its own DDE:

threat_info_for_transit
+ infrastructure_integrity_status_for_transit

threat_data_for_archive

This data flow contains information about threats detected in the transportation network and results of threat analysis performed on that data, for archival. These threats are based on analysis of data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and other emergency centers. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area
+ threat_duration
+ threat_analysis_results}

threat_detected

This data flow contains information about an actual threat detected in the transportation network for use is predicting potential incidents. This threat is based on sensor and surveillance data, and analysis of that data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and other emergency centers. This data flow includes the type of threat detected, the location, and any other details pertinent to the threat.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area
+ threat_duration}

threat_duration

This data flow gives the expected duration of a threat from its start time until the time at which it is expected that it will have no further ill effects. The data flow consists of the following data item which is defined in its own DDE:

duration

threat_info_for_maint

This data flow is sent from the Manage Emergency Services function to the Manage Maintenance and Construction function and contains information about threats detected in the transportation network. This threat is based on analysis of data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and other emergency centers. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area
+ threat_duration}

threat_info_for_traffic

This data flow is sent from the Manage Emergency Services function to the Manage Traffic function and contains information about threats detected in the transportation network. This threat is based on analysis of data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and other emergency centers. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area
+ threat_duration}

threat_info_for_transit

This data flow is sent from the Manage Emergency Services function to the Manage Transit function and contains information about threats detected in the transportation network. This threat is based on analysis of data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and other emergency centers. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area
+ threat_duration}

threat_info_to_operator

This data flow is sent from the Manage Emergency Services function to another process for use by center personnel and contains information about threats detected in the transportation network. This threat is based on analysis of data collected from secure

areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and other emergency centers. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area
+ threat_duration}

threat_information_for_dissemination

This data flow contains information about threats detected in the transportation network. This threat is based on analysis of data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and other emergency centers. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area
+ threat_duration}

threat_sensor_control

This data flow provides control commands for threat sensors (e.g., thermal, acoustic, radiological, chemical) located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure. etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ threat_sensor_control_data}

threat_sensor_control_data

This data flow provides control commands for a single threat sensor. These commands can be used to configure the sensor and to define processing parameters, including definition of thresholds for threat detection.

threat_sensor_data

This data flow contains actual sensor readings collected from threat sensors (e.g., thermal, acoustic, radiological, chemical) located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure. etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ threat_sensor_data_collected}

threat_sensor_data_collected

This data flow represents the output of a single threat sensor (e.g., thermal, acoustic, radiological, chemical) located in a secure area.

threat_sensor_data_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from threat sensors (e.g., thermal, acoustic, radiological, chemical) located in areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ threat_sensor_data_collected

threat_sensor_processed_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing threat sensor data (e.g., thermal, acoustic, radiological, chemical). It is analyzed, correlated with other sensor data, and used to detect potential threats in secure areas.

threat_sensor_status

This data flow is used within the Manage Emergency Services function to report the operational status (state of the sensor device, configuration, and fault data) of a threat sensor (e.g., thermal, acoustic, radiological, chemical) located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_device_status}

threat_severity

This data flow defines the severity of a threat.

throttle_commands

This data flow contains data showing any changes required to the current vehicle throttle setting in order to increase or decrease the headway between the vehicle and the one it is following, or to maintain a set vehicle speed. It may include the following data: keep at present level (default value), increase throttle (go faster or maintain speed up hill), decrease throttle (slow down or maintain speed down hill).

tifd-booking_information

This data flow contains information regarding a freight transportation booking and the assigned driver and vehicle scheduled to transport the freight. The data flow consists of the following data items each of which is defined in its own DDE:

cv_trip_identity
+ cv_driver_number
+ cv_driver_identity_characteristic_key
+ cv_route_number
+ cv_vehicle_number
+ freight_shipment_information
+ freight_equipment_number

tifd-freight_shipment_status

This data flow sent to an Intermodal Freight Depot terminator contains data about the movement of freight by means that may include methods other than commercial vehicles, e.g. heavy rail, air, sea, river, etc. This data will include the status of the freight being shipped and include identification of the cargo, its current location, and other status information, to support end-to-end tracking.

tifd-intermodal_archive_request

This data flow from the Manage Archived Data function to the Intermodal Freight Depot terminator contains the request for data collected and stored by the terminator that may be of interest to archived data users systems that is not included in data from sources within the ITS functions. This data flow includes request for a catalog of the information available as well as the request for the data itself. This data flow consists of the following items each of which is defined in its own DDE:

intermodal_archive_catalog_request
+ intermodal_archive_data_request

tifd-intermodal_archive_status

This data flow is sent from the Manage Archived Data function to the Intermodal Freight Depot terminator. It is the status returned when intermodal archive data is sent from the terminator to the Manage Archived Data function.

tifd-intermodal_freight_event_confirmation

This data flow is sent from the Manage Traffic function to the Intermodal Freight Depot terminator and is the confirmation that the previously submitted details of the movement of intermodal freight traffic have been accepted as a possible incident.

tifd-traffic_data_for_intermodal_freight

This data flow contains information about environmental conditions, current incidents on the road, and traffic flow state to be used by the Intermodal Freight Depot terminator. The data flow consists of the following data items each of which is defined in its own DDE:

roadway_environment_conditions
+ traffic_flow_state
+ link_state_data
+ current_incidents_data

tifs-booking_response

This data flow contains the response to a freight-booking request. It provides the shipper information about the driver and commercial vehicle that will be transporting the freight. The data flow consists of the following data items each of which is defined in its own DDE:

cv_trip_identity
+ cv_vehicle_number
+ cv_driver_number

tifs-border_clearance_status

This data flow is sent to the intermodal freight shipper system from the Manage Commercial Vehicle function. It contains the status of a commercial freight shipment moving across an international border. This data flow consists of the following data items each of which is defined in its own DDE:

cvo_border_clearance_info
+ cvo_border_status_from_other_cvas

tifs-freight_breach

This data flow provides an Intermodal Freight Shipper breach or tamper event data for freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

freight_breach

tifs-freight_shipment_status
This data flow sent to an Intermodal Freight Shipper terminator contains data about the movement of freight by means that may include methods other than commercial vehicles, e.g. heavy rail, air, sea, river, etc. This data will include the status of the freight being shipped and include identification of the cargo, it's current location, and other status information, to support end-to-end tracking.

time
This data flow is used within many ITS functions. It contains the current time of day and will be associated with other data flows and (possibly) a date.

time_period
This data flow is used within the Provide Driver and Traveler Services function to define the time period over which data about the use of a route segment is being provided.

time_to_closing
This data flow provides the actual computed time to closing for an active grade crossing.

timestamp
This data flow represents the time and date at which some piece of ITS data has been measured, sensed, or created. It consists of the following data items each of which are defined in its own DDE:

time + date

tispo-archive_status
This data flow is sent to the ISP system operator by the Provide Driver and Traveler Services function and contains the status received by Provide Driver and Traveler Services from the Manage Archived Data function after data was sent from Provide Driver and Traveler Services function to the Manage Archived Data function for archival. The status may be good (the data was correct and received without error) or bad (errors were either found in the data itself or during the transmission of the data).

tispo-data_collection_parameters
This data is sent to the ISP Operator from the Provide Driver and Traveler Services function. It contains the output of the parameters used to govern traveler data collection (transit, traffic, emergency, etc.) processes to support traveler services (trip planning, broadcast data, etc.). The output may be in audible, visual or hardcopy form and will require no further processing to be understood by the operator.

tispo-route_selection_parameters
This data is sent to the ISP Operator from the Provide Driver and Traveler Services function. It contains output of the parameters used by the route selection processes to best determine the routes used for travelers proposed trips and for on-line vehicle guidance. The output may be in audible, visual or hardcopy form and will require no further processing to be understood by the operator.

tispo-trav_info_equip_status
This data flow is sent to the ISP system operator and is used to report the status of short range communications field equipment. By monitoring this data flow, the ISP system operator can monitor the health and current operational status of these systems.

tispo-travel_services_operator_information
This data flow is sent to the ISP operator Provide Traveler Information Services function. It contains output of the parameters used to control the interface to the travelers as well as the travel services providers. This information may include the types of information being provided, the formats required, payment required for services, frequency of updates to the data, etc. This output is the result of requests made by the operator.

tispo-traveler_data_collected
This data flow is sent to the ISP operator by the Provide Driver and Traveler Services function. It contains the traveler data collected by the information provider's data collection processes. This includes traffic, transit, probe vehicle, emergency, multimodal, weather, yellow pages and event information. This could be conveyed using a map display.

tispo-traveler_information_parameters
This data is sent to the ISP Operator from the Provide Driver and Traveler Services function. It contains the output of the parameters used to control traveler information dissemination, including wide area information broadcast and interactive traveler data, traveler information alerts, yellow pages information, and emergency traveler information.

tispo-traveler_services_data
This data flow is sent to the ISP operator and contains traveler services information, including traffic, transit, multimodal, emergency, weather, etc., possibly conveyed using a map display.

tispo-trip_planning_data
This data flow is sent to the ISP operator and contains trip planning information, including the types of trips requested and confirmed by travelers, possibly conveyed using a map display.

tispo-trip_planning_parameters
This data flow is sent to the ISP Operator from the Provide Driver and Traveler Services function. It contains output of the parameters used by the trip planning processes to best determine the routes for travelers. The output may be in audible, visual or hardcopy form and will require no further processing to be understood by the operator.

tmc_identity
This data item is used within the Manage Traffic function and defines the logical identifier of an interfacing peer Traffic

Management Center (TMC) to share traffic data and system status. Other centers may be on-line to coordinate wide area traffic operations to promote traffic mobility and coordination. Security safeguards are employed to ensure unauthorized entities cannot masquerade as a valid TMC.

tmc_list

This data flow is used within the Manage Traffic function and contains a list of Traffic Management Centers (TMC's) from which the accompanying traffic data has been obtained for use by the local TMC. The data flow consists of the following data items each of which is defined by its own DDE:

list_size
+ 1{tmc_identity}list_size

tmcas-m_and_c_administrative_request

This data flow is sent from the Maintenance and Construction function to the Maintenance and Construction Administrative Systems, and contains a request for administrative information that could affect scheduling of maintenance and construction activities, such as regulations, personnel qualifications, supply purchase request status, and the like.

tmcas-m_and_c_work_performance

This data flow is sent from the Maintenance and Construction function to the Maintenance and Construction Administrative Systems, and contains project status and work performance information to support contract administration.

tmcas-resupply_request

This data flow is sent from the Manage Maintenance and Construction function to the Maintenance and Construction Administrative Systems, and contains requests for resupply of equipment and consumables.

tmcas-work_zone_info

This data flow contains a summary of maintenance and construction work zone activities that have been tailored for providing to a maintenance and construction administrative system. This information includes the nature of the maintenance or construction activity, location, expected time(s) and duration of work zone activity, and work zone resource status. This data flow consists of data from the following data item which is defined in its own DDE:

work_zone_data_for_status

tmccp-alert_and_threats_info

This data flow is sent to the Maintenance and Construction Center Personnel to provide notification of potential threats or a major emergency such as a natural or man-made disaster, civil emergency, or child abduction.

tmccp-archive_status

This data flow is sent to the maintenance and construction center personnel from the Manage Maintenance and Construction function and contains the status received by this function from the Manage Archived Data function after data was sent for archival. The status may be good (the data was correct and received without error) or bad (errors were either found in the data itself or during the transmission of the data).

tmccp-auto_treat_status

This data flow contains the operational status of automated treatment devices located at the roadway including records of equipment activation. By monitoring this data flow, the center personnel can track the occurrences of automated treatment.

tmccp-barrier_system_status

This data flow is sent to the maintenance and construction center personnel and is used to report the status of barrier systems (gates and other automated systems for roadway entry control).

tmccp-emergency_response_plan

This data flow is sent from the Manage Maintenance and Construction function to the Maintenance and Construction Center Personnel to present the data for the coordination of response plans between the M&C function and the Emergency management function for disasters and evacuations. This data flow is used to coordinate disaster response and recovery plans with maintenance and construction. It contains information regarding the nature of the disaster, and the preplanned response and recovery plan for maintenance. Given this information, maintenance can provide a plan that it will use that is appropriate for the given disaster.

tmccp-env_and_weather_data

This data flow represents the environmental and weather information that is displayed to the maintenance and construction center personnel. The information content of the display is comprised of the following data item which is defined in its own DDE:

env_and_weather_data

tmccp-env_info_for_dissemination

This data flow represents the display to the maintenance and construction center personnel of environmental and road weather information that has been formatted for distribution to organizations external to the manage maintenance and construction

tmccp-m_and_c_activity_status

This data flow is sent to the Maintenance and Construction Center Personnel and contains the current status of M&C and activities, including work status, materials availability, vehicle fleet status, asset status, field equipment maintenance status, etc. This status is created for output to the M&C personnel and it consists of the following data item which is defined in its own DDE:

m_and_c_activity_status

tmccp-mdss_recommended_actions

This data flow is sent to the Maintenance and Construction Center Personnel and contains a recommended course of action generated by the automated Maintenance Decision Support System, based on processing parameters input by the center personnel. The recommended actions result from inputs including environmental conditions, road network information, maintenance and construction activity status, and available resources.

tmccp-processed_env_info

This data flow represents the display of processed environmental and road weather information to the maintenance and construction center personnel. The data displayed is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. Road condition observations and road condition predictions will be displayed as well as road weather forecasts and road weather observations. The information displayed is comprised of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

tmccp-resource_request

This data flow is sent from the Manage Maintenance and Construction function to the Maintenance and Construction Center Personnel to officially request the use of resources. Although primarily requested on behalf of other agencies (such as emergency, traffic, etc.), it could also be used to assist in prioritizing the use of resources within maintenance and construction. This data flow contains a request and a list of the resources requested, including equipment, maintenance and construction vehicles, and materials.

tmccp-scheduled_work_plan

This data flow is used within the Manage Maintenance and Construction function and contains information for use by center personnel about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

scheduled_work_plan_for_personnel

tmccp-vehicle_fleet_status

This data flow is sent to the Maintenance and Construction Center Personnel and contains information from the fleet management function concerning the status of its fleet of vehicles. It includes for each vehicle the type, equipment configuration, location, operational status, maintenance record, work activity status, and crew/operator status. Additionally, incident information and road network information are included. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_fleet_status_for_personnel
+ mcv_tracking_data_for_personnel

tmccp-vehicle_speed_data

This data flow is sent to the Maintenance and Construction Center Personnel and contains vehicle speed data for display. The speed data could be actual sensor data, or data that has been processed or aggregated. It consists of the following data item which is defined in its own DDE:

speed_data_for_m_and_c_display

tmccp-view_of_road_network

This data flow is sent to the Maintenance and Construction Center Personnel and contains a view of the road network appropriate for supporting the maintenance and construction personnel. This information represents a consolidation of inputs from transit, emergency, and private vehicle probes, road network information including travel times, route usage, and incidents and incident response, and environmental information collected from the Manage Traffic and Manage Emergency Services functions. The data flow consists of the following item which is defined in its own DDE:

m_and_c_view_of_road_network

tmccp-work_zone_images_for_display

This data flow contains digitized images of activities in work zones for display to the maintenance and construction center personnel. This data flow consists of data from the following data items which are defined in their own DDE:

work_zone_images
+ fomcm-work_zone_images
+ work_zone_intrusion_video_image

tmccp-work_zone_info

This data flow contains a summary of the work zone information being provided to other organizations. The data flow represents the information that is viewed on a display by the maintenance and construction center personnel.

tmcfp-dispatch_info

This data is sent to the Maintenance and Construction Field Personnel and contains dispatch information from the vehicle fleet manager to the vehicle operator, under normal and winter conditions. The data flow consists of the following data item which is defined in its own DDE:

dispatch_orders_to_mcv
+ winter_dispatch_orders_to_mcv

tmcfp-environmental_sensor_info
This data flow provides information from environmental sensors on-board a maintenance and construction vehicle for presentation to the Maintenance and Construction Field Personnel. The environmental sensor information may come from the vehicle operated by the Maintenance and Construction Field Personnel or from another maintenance and construction vehicle. It consists of the following data items each of which is defined in its own DDE:

environmental_sensor_data_on_board
+ environmental_sensor_status_on_board
+ fomcv-env_conditions

tmcfp-field_equip_status
This data flow to the Maintenance and Construction Field Personnel contains the operational status (state of the device, configuration, and fault status) of sensors and devices in the field.

tmcfp-materials_status_onboard
This data flow to the Maintenance and Construction Field Personnel contains information about the types of materials stored on-board the vehicle and the materials usage rates. It consists of the following data item which is defined in its own DDE:

materials_status

tmcfp-mcv_operational_data
This data flow is sent to the Maintenance and Construction Field Personnel to inform them about the maintenance and construction activity performed by the vehicle. Operational data includes the operational state of the maintenance equipment (e.g., blade up/down, spreader pattern, equipment configuration) and a record of the actual work performed. It consists of the following data item which is defined in its own DDE:

operational_data_for_mcv

tmcfp-mdss_recommended_actions
This data flow to the Maintenance and Construction Field Personnel contains the recommended roadway treatment actions output from the maintenance decision support system function.

tmcfp-road_network_info
This data flow is sent to the Maintenance and Construction Field Personnel and contains a view of the road network for the vehicle operator. This information includes travel times, route usage, and incidents and incident response, and environmental information. The data flow consists of the following item which is defined in its own DDE:

road_network_info_to_mcv
+ fomcv-env_conditions

tmcfp-suggested_route
This data flow to the Maintenance and Construction Field Personnel provides a suggested route for a dispatched vehicle driver that takes into account current traffic conditions, the current location and routes of other vehicles, and any road restrictions. This data flow identifies the maintenance and construction vehicle and provides turn-by-turn route information. The data flow consists of the following data items each of which is defined in its own DDE:

suggested_route_to_mcv

tmcfp-vehicle_condition_status
This data flow is sent to the Maintenance and Construction Field Personnel and contains information about the vehicle's current location and condition, including mileage, engine and system status, safety system status, etc. It consists of the following data items each of which is defined in its own DDE:

vehicle_location_for_mcv_operator
+ basic_mcv_measures_for_mcv_operator

tmcfp-work_zone_intrusion_alert
This data flow is sent to the maintenance and construction field personnel and represents an auditory or electronic alert that a vehicle has intruded upon a work zone, or is about to intrude upon a work zone. The auditory alert may constitute a siren, or other type of alarm. The electronic alert could cause an alert on a device carried by the personnel.

tmcfp-work_zone_intrusion_alert_from_mcv
This data flow is sent to the maintenance and construction field personnel and represents an auditory or electronic alert that a vehicle has intruded upon a work zone, is about to intrude upon a work zone. The alert can also be provided based upon a detection on board the maintenance and construction vehicle that another vehicle is approaching too quickly, or is too close for safety. The auditory alert may constitute a siren, or other type of alarm. The electronic alert could cause an alert on a device carried by the personnel.

tmcfp-work_zone_intrusion_warning
This data flow contains a warning from a roadside device to maintenance and construction field personnel that a work zone intrusion has been detected. The warning could be an auditory alarm that warns any personnel nearby. Alternatively the warning could be a data communication to devices carried by the personnel. This warning could be to all personnel within a

radius of the device, or it could be directed to specific personnel who have been judged to be at risk based upon knowledge of their location and knowledge of the location of the intrusion.

tmcfp-work_zone_on_board_intrusion_warning
This data flow contains a warning from on board a maintenance and construction vehicle to a maintenance and construction field personnel that a work zone intrusion has been detected. The warning could be an auditory alarm sounded from the vehicle that warns any personnel nearby. Alternatively the warning could be a data communication to devices carried by the personnel. This warning could be to all personnel within a radius of the vehicle, or it could be directed to specific personnel who have been judged to be at risk based upon knowledge of their location and knowledge of the location of the intrusion.

tmcfp-work_zone_status_presentation
This data flow represents the presentation of work zone status information to a maintenance and construction field personnel. The status can be generated locally (from devices on the maintenance and construction vehicle) or the status can originate from other work zones, or other areas of the current work zone. The work zone status can include on-board device status, field personnel status, barrier system status, maintenance and construction vehicle status, or activity status. It consists of the following data items each of which is defined in its own DDE:

work_zone_status_for_display
+ status_of_other_work_zones

tm-emergency_information
This data flow provides information about current incidents. It contains the following data item which is defined in its own DDE:

incident_details

tm-incident_data
This data flow contains data on current incidents and/or planned events in a form which will be readily understood by the Media. The data is sent in response to a request for information from the media.

tm-incident_information
This data flow contains data on current incidents in a form which will be readily understood by Media Systems.

tm-m_and_c_work_plans_for_media
This data flow is sent from the Manage Maintenance and Construction function to the Media. It contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans

tmmc-crossing_clear_at_highways
This data flow is sent to the multimodal crossings from the Manage Traffic function to indicate that freeway traffic has been stopped and the crossing may be used by the other (non-road or highway) transportation system.

tmmc-crossing_clear_at_roads
This data flow is sent to the multimodal crossings from the Manage Traffic function to indicate that road (surface street) traffic has been stopped and the crossing may be used by the other (non-road or highway) transportation system.

tmmc-highway_equipment_status
This data flow is sent to the multimodal crossing from the Manage Traffic function to indicate the operational status of the roadway equipment (e.g. traffic control devices, lane closure indicators, dynamic message signs, etc).

tmmc-road_equipment_status
This data flow is sent to the multimodal crossing from the Manage Traffic function to indicate the operational status of the roadway equipment (e.g. traffic control devices, lane closure indicators, dynamic message signs, etc).

tmmc-stop_alternate_mode_at_highways
This data flow is sent to the multimodal crossings from the Manage Traffic function to indicate that the alternate mode traffic must if possible be stopped, to enable the crossing to be used by emergency vehicles. Output of this data does not guarantee that the emergency vehicle(s) will have preemption, since in some cases it may be too late to stop the alternate mode traffic.

tmmc-stop_alternate_mode_at_roads
This data flow is sent to the multimodal crossings from the Manage Traffic function to indicate that the alternate mode traffic must if possible be stopped, to enable the crossing to be used by emergency vehicles. Output of this data does not guarantee that the emergency vehicle(s) will have preemption, since in some cases it may be too late to stop the alternate mode traffic.

tm-pollution_data
This data flow provides information on current pollution data in a form which will be readily understood by the Media.

tm-road_weather_info
This data flow contains environmental and road weather information that has been formatted for distribution to the Media terminator. The data may be filtered or aggregated prior to this formatting. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions + road_weather_conditions

tm-roadway_maint_status_for_media

This data flow is sent from the Manage Maintenance and Construction function to the Media and contains information summarizing the current roadway maintenance activities. This also includes maintenance fleet operations affecting the road network such as winter maintenance (snow plow schedules and status). The data flow consists of the following data item which is defined in its own DDE:

current_roadway_maintenance_status

tms_coordination_for_hri

This is a data flow provided by traffic management service to coordinate overall traffic operations with hri operations. It conveys data from processes within traffic management to processes responsible for managing a grade crossing operation. The reciprocal flow is named hri_coordination_for_tms.

hri_traffic_surveillance

tms_requests

This data flow is generated in response to a need for hri status for traffic management.

tm-traffic_data

This data flow gives information on a particular current traffic situation in a form which will be readily understood by Media Systems.

tm-traffic_information

This data flow gives information on a particular current traffic situation in a form which will be readily understood by Media Systems.

tm-traffic_video_images

This data flow contains video image data collected by roadside equipment under the Manage Traffic function. This data is in a form which will be readily understood by the Media.

tm-transit_emergency_information

This data flow provides information to the media that an emergency has occurred within a transit vehicle. The location of the transit vehicle and details of the emergency will be included in the information, subject to any constraints applied by the transit media information parameters. These parameters will also control the style and format of the way in which the information is presented to the media.

tm-transit_incident_information

This data flow contains information about an incident that has occurred within part of the transit operations network, e.g. transit stop or mode interchange point. The location and details of the incident will be included in the information, subject to any constraints applied by the transit media information parameters. These parameters will also control the style and format of the way in which the information is presented to the media.

tm-transit_schedule_deviations_to_media

This data flow contains details of deviations from schedule of regular transit services. The information will enable the media to broadcast the details to travelers via such things as local radio, bulletin boards, etc.

tm-transit_vehicle_deviations

This data flow contains details of deviations from schedule of specific transit vehicles, or routes. The information will enable the media to broadcast the details to travelers via such things as local radio, bulletin boards, etc.

tm-traveler_information_request

This data flow is sent to the media from the Provide Driver and Traveler Services function and contains a request for any information that the media has that might be of interest to travelers planning trips. This may include but not be limited to such things as sports or other special events.

tmtsp-air_services_request

This data flow is sent to the multimodal transportation service provider from the Provide Driver and Traveler Services function and contains a request for details of the regular and charter air services available to move travelers.

tmtsp-confirm_multimodal_service

This data flow is sent from the Provide Driver and Traveler Services function to the Multimodal Transportation Service Provider to confirm that a traveler wishes to make use of alternate mode services as part of a proposed trip. It consists of the following data items each of which is defined in its own DDE:

traveler_identity + multimodal_services_details

tmtsp-ferry_services_request

This data flow is sent to the multimodal transportation service provider from the Provide Driver and Traveler Services function and contains a request for details of the sea and river ferry services available to move travelers.

tmtsp-individual_service_request

This data flow contains a request to a multimodal transportation service provider for a portion of an individual trip they are to provide. This request involves the coordination of connection protection for an individual user.

tmtsp-m_and_c_work_plans_for_mtsp

This data flow is sent from the Manage Maintenance and Construction function to the Multimodal Transportation Service Provider. It contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans

tmtsp-multimodal_archive_request

This data flow from the Manage Archived Data function to the Multimodal Transportation Service Provider terminator contains the request for data collected and stored by the terminator that may be of interest to archived data users systems that is not included in data from sources within the ITS functions. This data flow includes request for a catalog of the information available as well as the request for the data itself. This data flow consists of the following items each of which is defined in its own DDE:

multimodal_archive_catalog_request
+ multimodal_archive_data_request

tmtsp-multimodal_archive_status

This data flow is sent from the Manage Archived Data function to the Multimodal Transportation Service Provider terminator. It is the status returned when multimodal archive data is sent from the terminator to the Manage Archived Data function.

tmtsp-non_motorized_services_request

This data flow is sent to the multimodal transportation service provider from the Provide Driver and Traveler Services function and contains a request for details of the non-motorized traveler services available to move travelers.

tmtsp-rail_services_request

This data flow is sent to the multimodal transportation service provider from the Provide Driver and Traveler Services function and contains a request for details of the heavy rail services (i.e. those which do not form part of a transit operation) available to move travelers.

tmtsp-service_request

This data flow contains a service request to a multimodal transportation service provider for a schedule change to support connection protection.

tmtsp-transit_arrival_deviations

This data flow is sent to the multimodal transportation service provider from the Manage Transit function and contains details of the changes that are currently expected to the arrival time of transit vehicles at the modal interchange point(s). The data is intended to enable the coordination of services between the multimodal and regular transit operations.

tmtsp-transit_service_data

This data flow is sent to the multimodal transportation service provider from the Manage Transit function and contains details of the regular transit services provided by the local transit operation, including transfer points. The data is intended for use in the coordination of services between the multimodal and regular transit operations. This data flow contains the following item which is defined in its own DDE:

transit_transfer_cluster_list

tmup-emergency_route_map_request

This data flow is sent to the map update provider from the Manage Emergency Services function. It contains a request for an update to the digitized map data for displays that can be used for planning routes for emergency vehicles.

tmup-fleet_map_update_request

This data flow is sent to the map update provider from the Manage Commercial Vehicle function and contains a request for an update of the map database used for generating new commercial vehicle routes and as a background to displays of fleet services requested by the commercial vehicle fleet manager.

tmup-map_archive_request

This data flow from the Manage Archived Data function to the Map Update Provider contains the request for data collected and stored by the terminator that may be of interest to archived data users systems that is not included in data from sources within the ITS functions. This data flow includes request for a catalog of the information available as well as the request for the data itself. This data flow consists of the following items each of which is defined in its own DDE:

map_archive_catalog_request
+ map_archive_data_request

tmup-map_archive_status

This data flow is sent from the Manage Archived Data function to the Map Update Provider. It is the status returned when imported map archive data is sent from the terminator to the Manage Archived Data function.

tmup-map_static_data

This data flow is sent to the map update provider and contains a new set of static data or a set of transit route data. This will be used by the map provider in the preparation of a new set of digitized map data which can then be used by this and other functions within ITS.

tmup-request_demand_display_update
This data flow is sent to the map update provider from the Manage Demand facility within the Manage Traffic function. It contains a request for an update to the digitized map data for displays that can be used as background for the output of data on traffic and travel demand levels.

tmup-request_driver_display_update
This data flow is sent to the map update provider from the Provide Driver and Traveler Services function and contains a request for an update to the digitized map data used for providing the background to displays of traffic and travel information on a device in a vehicle.

tmup-request_driver_display_update_cost
This data flow is sent to the map update provider from the Provide Driver and Traveler Services function and contains a request for the cost of an update to the digitized map data used for providing the background to displays of traffic and travel information on a device in a vehicle.

tmup-request_emergency_display_update
This data flow is sent to the map update provider from the Manage Emergency Services function. It contains a request for an update to the digitized map data for displays that can be used as the background for the output of data incidents and emergencies to the emergency system operator.

tmup-request_incident_display_update
This data flow is sent to the map update provider from the Display and Update Incident Data facility within the Manage Traffic function. It contains a request for an update to the digitized map data for displays that can be used as background for the output of data on current incidents and planned events.

tmup-request_info_provider_map_update
This data flow is sent to the map update provider by the Provide Driver and Traveler Services function and contains a request for a new copy of the digitized map data used by processes to support traveler services.

tmup-request_m_and_c_display_update
This data flow is sent to the Map Update Provider from the Manage Maintenance and Construction function to request an update of the digitized map data used as a background for displays of data about maintenance and construction activities.

tmup-request_m_and_c_route_map
This data flow is sent to the Map Update Provider from the Manage Maintenance and Construction function to request an update of the digitized map data used as a background to assist in maintenance and construction vehicle routing.

tmup-request_pollution_display_update
This data flow is sent to the map update provider from the Manage Emissions facility within the Manage Traffic function. It contains a request for an update to the digitized map data for displays that can be used as background for the output of data on the levels of various atmospheric pollutants.

tmup-request_traffic_display_update
This data flow is sent to the map update provider from the Display and Output Traffic Data facility within the Manage Traffic function. It contains a request for an update to the digitized map data for displays that can be used as background for the output of data on current and predicted traffic levels.

tmup-request_traveler_display_update
This data flow is sent to the map update provider from the Provide Driver and Traveler Services function. It contains a request for an update to the digitized map data used for displays that can be output as background for traffic, trip and travel information for use by travelers at kiosks. It must include the identity of the kiosk from which the request has originated so that the map update provider can determine the map data to supply that will be relevant to the area in which the kiosk is located.

tmup-request_traveler_personal_display_update
This data flow is sent to the map update provider from the Provide Driver and Traveler Services function. It contains a request for an update to the digitized map data used for displays that can be output as background for traffic, trip and travel information for use by a traveler at a personal device. The map update provider is expected to use them as a means of obtaining payment for providing the map data, but not for 'tuning' the data so that it will be relevant to the area in which the kiosk is located since there is no knowledge of where the device may be used. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ traveler_identity

tmup-request_traveler_personal_display_update_cost
This data flow is sent to the map update provider from the Provide Driver and Traveler Services function and contains a request for the cost of an update to the digitized map data used for providing the background to displays of traffic and travel information on a traveler personal device.

tmup-route_restrictions
This data flow contains information about road segments and areas (surrounded by road segments) that do not allow the transport of security sensitive hazmat cargoes or may indicate other restrictions (such as height or weight limits). These restrictions are intended to be used in the preparation of map databases that might then be used to prepare routes for commercial vehicles. The data flow consists of the following data item which is defined in its own DDE:

hazmat_route_restrictions
+ current_asset_restrictions

tmup-traffic_probe_data
This data flow is sent from the Manage Traffic function to the Map Update Provider and consists of traffic probe data collected at the roadside. For each vehicle, the data includes a unique vehicle identifier, the vehicle's speed, heading and snapshots of recent events including starts and stops, speed changes, and other information that can be used to estimate traffic conditions. It consists of the following data items each of which is defined in its own DDE:

list_size
+ station_id
+ list_size {vehicle_traffic_probe_data + vehicle_guidance_probe_data}

tmup-transit_map_update_request
This data flow is sent to the map update provider from the Manage Transit function and contains a request for an update of the map database used for generating new transit routes and as a background to displays of transit services requested by the transit system operator.

tmup-traveler_map_update_cost_request
This data flow is sent to the map update provider from the Provide Driver and Traveler Services function and contains a request for the cost of an update to the navigable map database used for providing traveler personal on-line guidance.

tmup-traveler_map_update_request
This data flow is sent to the map update provider from the Provide Driver and Traveler Services function and contains a request for an update of the digitized map database used for guiding travelers on their selected routes.

tmup-vehicle_map_update_cost_request
This data flow is sent to the map update provider from the Provide Driver and Traveler Services function and contains a request for the cost of an update to the navigable map database used for providing in-vehicle on-line guidance.

tmup-vehicle_map_update_request
This data flow is sent to the map update provider from the Provide Driver and Traveler Services function and contains a request for an update of the navigable map database used for providing in-vehicle on-line guidance.

tm-work_zone_images
This data flow contains analog or digitized video images of a work zone that are being released for external viewing, in this case to the media.

tm-work_zone_info
This data flow contains a summary of maintenance and construction work zone activities that have been tailored for providing to the media. This information includes the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. The data flows also contains work zone resource status. This data flow consists of data from the following data item which is defined in its own DDE:

work_zone_data_for_status

To_Alerting_and_Advisory_Systems
This data flow is sent to the Alerting and Advisory Systems terminator and consists of the following items each of which is defined in its own DDE:

taas-traveler_image
+ taas-traveler_image_matching_details
+ taas-threat_info
+ taas-threat_info_from_cvo
+ taas-threat_info_from_freight
+ taas-threat_data_for_analysis

To_Archived_Data_Administrator
This data flow to the Archive Data Administrator terminator contains management information concerning the status and security of the archive, and the status of data collection and monitoring devices in the field. This data flow consists of the following items each of which is defined in its own DDE:

tada-archive_administration_data
+ tada-data_collection_device_status

To_Archived_Data_User_Systems
This data flow is sent to the Archive Data User Systems terminator from the Manage Archived Data function. It consists of the following data items each of which is defined in its own DDE:

tadu-on_demand_confirmation
+ tadu-archive_analysis_results
+ tadu-archive_data_product

To_Asset_Management

This data flow is sent to Asset Management and contains information regarding changes to the inventory of maintenance and construction assets (such as pavement, bridges, signs, etc.) including repairs that have been made and detection of faults by infrastructure sensors. It also contains requests for new asset data to be archived, and status on past archival transfers. It consists of the following data items each of which is defined in its own DDE:

tam-asset_status_update_for_asset_mgmt
+ tam-infrastructure_data_for_analysis
+ tam-asset_archive_status
+ tam-archive_request

To_Basic_Commercial_Vehicle

This data flow is sent to the non-ITS equipment on a commercial vehicle and contains control data for disabling the vehicle in emergencies. It consists of the following data item which is defined in its own DDE:

tbcv-disable_vehicle

To_Basic_MC_Vehicle

This data flow is sent to the non-ITS systems on-board a maintenance and construction vehicle and is used to control the vehicle equipment. It includes control data to support materials applications and other functions depending upon the type of vehicle. The data flow consists of the following item which is defined in its own DDE:

tbmcv-vehicle_system_control

To_Basic_Transit_Vehicle

This data flow is sent to the non-ITS functions on a transit vehicle from the Manage Transit function and contains control data for disabling the vehicle in emergency situations. It consists of the following data item which is defined in its own DDE:

tbtv-transit_vehicle_disable_command
+ tbtv-transit_vehicle_disable_reset_command

To_Basic_Vehicle

This data flow contains commands to on-board vehicle actuators that control vehicle operation in terms of speed, direction and crash restraints. In addition it contains highway advisory radio (HAR) input to the radio (AM or FM) which is in the vehicle. It consists of the following data items each of which is defined in its own DDE:

tbv-change_brake_setting
+ tbv-change_direction
+ tbv-change_throttle_setting
+ tbv-deploy_crash_restraints
+ tbv-steer_left
+ tbv-steer_right
+ tbv-steer_straight
+ tbv-har_broadcast
+ tbv-vehicle_security_system_commands

To_Border_Insp_Admin

This data flow is sent to the Border Inspection Administration systems terminator from the Manage Commercial Vehicles and Manage Archived Data functions and contains data regarding border clearances of commercial vehicles including the drivers, cargo, and their carriers. It consists of the following data items each of which is defined in its own DDE:

tbia-archive_request
+ tbia-border_archive_status
+ tbia-border_client_information
+ tbia-border_screening_results
+ tbia-fleet_expedited_clearance_request
+ tbia-fleet_manifest_data
+ tbia-border_clearance_status

To_Border_Insp_Systems

This data flow is sent to the Border Inspection Systems terminator from the Manage Commercial Vehicles, Manage Emergency Services, Manage Traffic, and the Provide Driver and Traveler Services functions and contains data regarding border clearances of commercial vehicles including the vehicle, drivers, cargo, and their carriers. It consists of the following data items each of which is defined in its own DDE:

tbis-border_vehicle_onboard_clearance_data
+ tbis-border_incident_information
+ tbis-traffic_border_incident
+ tbis-traffic_border_incident_video

To_Care_Facility

This data flow is sent by processes within the Manage Emergency Services functions to the Care Facility Terminator. It contains the request for emergency care provider location, specialized services, quality of care, number of rooms available, and emergency room status. When this data is received it is used to route emergency vehicles to the closest medical care provider

required for patients. It consists of the following data items each of which is defined in its own DDE:

tcf-care_facility_status_request
+ tcf-emergency_vehicle_patient_status_update
+ tcf-care_facility_vehicle_status_request
+ tcf-care_facility_disaster_data
+ tcf-care_facility_status_request_for_disaster

To_Commercial_Vehicle_Driver

This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicle function and contains responses to requests for information or messages to the commercial vehicle driver. It consists of the following data items each of which is defined in its own DDE:

tcvd-border_pull_in_output
+ tcvd-confirm_data_stored
+ tcvd-critical_safety_problem
+ tcvd-critical_security_problem
+ tcvd-data_input_request
+ tcvd-data_request
+ tcvd-enrollment_confirmation
+ tcvd-enrollment_payment_confirmation
+ tcvd-general_pull_in_output
+ tcvd-inspection_results
+ tcvd-other_data_request
+ tcvd-output_data
+ tcvd-output_tag_data
+ tcvd-clearance_pull_in_output
+ tcvd-route_data
+ tcvd-routing_instructions
+ tcvd-safety_pull_in_output
+ tcvd-type_input_request
+ tcvd-on_board_pull_in_output

To_CVO_Information_Requestor

This data flow is sent to the commercial vehicle information requester from the Manage Commercial Vehicles function. It contains credential and safety status information. The data flow consists of the following item which is defined in its own DDE:

tcvoir-credentials
+ tcvoir-credential_status
+ tcvoir-safety_status
+ tcvoir-driver_record
+ tcvoir-cv_carrier_participation_report

To_CVO_Inspector

This data flow is sent from the Manage Commercial Vehicles function to the commercial vehicle roadside facility inspector and contains data on commercial vehicle inspections and safety checks being carried out at the roadside facility where the inspector works. It consists of the following data items each of which is defined in its own DDE:

tci-credentials_data_output
+ tci-inspection_report
+ tci-output_log_report
+ tci-pull-in_information
+ tci-safety_data_output

To_DMV

This data flow is sent to the Department of Motor Vehicles from several processes within the ITS functions and provides a path to request vehicle registration data. It consists of the following data items each of which is defined in its own DDE:

tdmv-parking_lot_violation_identity_code
+ tdmv-parking_lot_violation_vehicle_license
+ tdmv-toll_violation_identity_code
+ tdmv-toll_violation_vehicle_license
+ tdmv-traffic_violation_identity_code
+ tdmv-traffic_violation_vehicle_license
+ tdmv-emissions_violation_identity_code
+ tdmv-emissions_violation_vehicle_license
+ tdmv-vmt_identity_code
+ tdmv-vmt_vehicle_license

To_Driver

This data flow is sent to the driver from the Provide Driver and Traveler Services, Manage Traffic, Manage Maintenance and Construction, and Provide Electronic Payment Services functions. It contains output from traffic indicators (intersection and pedestrian controllers, signs, etc.), output from driver advisory signs on-board maintenance and construction vehicles, the results of payment transactions, work zone intrusion alerts from roadside devices and the vehicle itself, and on-line vehicle guidance and

travel advisory data that has been requested by the driver. The data flow consists of the following data items each of which is defined in its own DDE:

td-advisory_information
+ td-broadcast_information
+ td-driver_vehicle_access_status
+ td-driving_guidance
+ td-guidance_input_request
+ td-guidance_map_update_response
+ td-guidance_route_details
+ td-information_for_drivers_in_traffic_FB
+ td-other_services_parking_response
+ td-other_services_toll_response
+ td-parking_lot_payment_confirmed
+ td-parking_lot_payment_invalid
+ td-parking_information
+ td-toll_payment_confirmed
+ td-toll_payment_invalid
+ td-traffic_advisory_from_mcv
+ td-mcv_on_board_display
+ td-vehicle_occupants_detected
+ td-work_zone_intrusion_alert
+ td-work_zone_intrusion_alert_from_mcv
+ td-vmt_cost_data
+ td-vmt_payment_confirmation
+ td-dynamic_lane_control

To_Emergency_Personnel

This data flow is sent to the emergency personnel from the Manage Emergency Services function. It consists of the following data item which is defined in its own DDE:

tep-emergency_dispatch_order
+ tep-decision_support
+ tep-incident_command_information_presentation
+ tep-barrier_system_status

To_Emergency_System_Operator

This data flow is sent from the Manage Emergency Services function and contains output requested by the emergency services operator. It consists of the following data items each of which is defined in its own DDE:

teso-emergency_action_log_output
+ teso-emergency_data_output
+ teso-emergency_request
+ teso-emergency_vehicle_dispatch_failure
+ teso-archive_status
+ teso-image_match
+ teso-secure_area_sensor_surveillance_information
+ teso-alerts_and_advisories
+ teso-wide_area_alert_status
+ teso-emergency_routing_information

To_Emergency_Telecommunications_System

This data flow is sent to the Emergency Telecommunications System by the Manage Emergency Services function. The terminator includes specialized systems and services that exist to provide an immediate response to emergencies that are reported by travelers, drivers and the general public, e.g. 911, E911, the new RESCUE service, etc. It consists of the following items each of which is defined in its own DDE:

tets-incident_acknowledge
+ tets-incident_information_dissemination

To_Emissions_Operations_Personnel

This data flow is used by various processes within the Manage Traffic function to send data on pollution data to emissions operations personnel. It consists of the following data items each of which is defined in its own DDE, and some of which are groups of output flows belonging to the same facility:

temo-pollution_data_display
+ temo-vehicle_emissions_data

To_Enforcement_Agency

This data flow is sent from several processes to the enforcement agency and contains information about violations that have been detected by many of the other functions within ITS. The data contained in each of these flows will enable the enforcement agency to carry out a prosecution of the offender if required and to provide access to its repository of information. The data flow consists of the following data item which is defined in its own DDE:

tea-fare_collection_roadside_violation_data
+ tea-fare_collection_vehicle_violation_data
+ tea-fare_payment_violation_data
+ tea-parking_violation_data
+ tea-toll_violation_data
+ tea-traffic_violation_data
+ tea-speed_sensor_status
+ tea-enforcement_request_from_m_and_c
+ tea-enforcement_request_from_traffic
+ tea-speed_violation_notification
+ tea-accident_data
+ tea-cv_violation_data
+ tea-cvo_violation
+ tea-cv_citation_data
+ tea-cv_carrier_participation_report
+ tea-cv_safety_inspection
+ tea-emissions_violation_data
+ tea-vmt_equipment_failure
+ tea-lane_violation_notification
+ tea-request_lane_enforcement
+ tea-shoulder_violation_notification
+ tea-request_shoulder_enforcement
+ tea-lane_violation_notification_from_roadway
+ tea-shoulder_violation_notification_from_roadway

To_Equipment_Repair_Facility

This data flow is sent from the Manage Maintenance and Construction function to the Equipment Repair Facility. It contains information about the vehicle conditions and use of each maintenance and construction vehicle, and the scheduling information to support repair and maintenance of the vehicles and equipment. It also contains recommended actions based on the maintenance and construction decision system support. It consists of the following data items each of which is defined in its own DDE:

terf-basic_mcv_measures_for_equip_repair
+ terf-fleet_maintenance_availability
+ terf-vehicle_utilization_information
+ terf-mdss_recommended_actions

To_Event_Promoters

This data flow is sent from the Manage Traffic, Manage Transit, Manage Emergency Services, and Provide Driver and Traveler Services functions to Event Promoters and includes requests for event information and confirmation that previous event information has been logged by the respective functions. It contains the following data items each of which is defined in its own DDE:

tevp-event_confirmation
+ tevp-planned_event_confirmation
+ tevp-event_information_request
+ tevp-event_confirmation_from_transit

To_Financial_Institution

This data flow is sent to the Financial Institution from the Provide Electronic Payment Services function and contains requests for payment to be made for services being requested by travelers or drivers, or details of those involved in bad transaction data. It consists of the following data items each of which is defined in its own DDE:

tfi-cv_payment_request
+ tfi-fare_payment_violator_data
+ tfi-parking_lot_payment_violator_data
+ tfi-request_charges_payment
+ tfi-request_fare_payment
+ tfi-request_toll_payment
+ tfi-toll_payment_violator_data
+ tfi-driver_map_payment_request
+ tfi-other_services_payment_request
+ tfi-registration_payment_request
+ tfi-traveler_display_payment_request
+ tfi-traveler_map_payment_request
+ tfi-traveler_other_services_payments_request
+ tfi-traveler_rideshare_payment_request
+ tfi-archive_payment_request
+ tfi-archive_analysis_payment_request
+ tfi-driver_display_payment_request
+ tfi-request_vmt_payment

To_Fleet_Freight_Manager

This data flow is sent to the commercial fleet manager from the Manage Commercial Vehicles function and contains data to be output to the manager. It consists of the following data items each of which is defined in its own DDE:

tffm-confirm_enrollment_data_stored
+ tffm-data_input_request
+ tffm-driver_route_instructions
+ tffm-enrollment_confirmation
+ tffm-enrollment_payment_confirmation
+ tffm-freight_data_input_request
+ tffm-incident_alert
+ tffm-other_data_request
+ tffm-output_tag_data
+ tffm-preclearance_results
+ tffm-roadside_activity_report
+ tffm-route_data
+ tffm-assignment_alert
+ tffm-freight_route_alert
+ tffm-freight_integrity_alert

To_Freight_Equipment

This data flow contains data sent to freight equipment, which included intermodal freight containers, intermodal chassis and truck trailers. The data flow consists of the following item which is defined in its own DDE:

tfe-operational_monitoring_parameters
+ tfe-integrity_monitoring_parameters

To_Govt_Reporting_Systems

This data flow is sent to the Government Reporting Systems terminator from the Manage Archived Data function. It consists of the following data items each of which is defined in its own DDE:

tgrs-government_data_report_input

To_Intermodal_Freight_Depot

This data flow to the Intermodal Freight Depot terminator provides details of the movement of freight by means that may include methods other than commercial vehicles, e.g. heavy rail, air, sea, river, etc. This data flow also contains requests for archive data and a returned status from the archive function. This data flow also provides a confirmation of traffic event information. This data flow consists of the following data items each of which is defined in its own DDE:

tifd-booking_information
+ tifd-freight_shipment_status
+ tifd-intermodal_archive_request
+ tifd-intermodal_archive_status
+ tifd-intermodal_freight_event_confirmation
+ tifd-traffic_data_for_intermodal_freight

To_Intermodal_Freight_Shipper

This data flow is sent to the Intermodal Freight Shipper from the Manage Commercial Vehicle function. It contains information regarding the clearance status of a commercial vehicle freight shipment from a roadside checkstation, such as an international border facility. and details on the movement of freight by means that may include methods other than commercial vehicles, e.g. heavy rail, air, sea, river, etc. This data flow consists of the following data items each of which is defined in its own DDE:

tifs-border_clearance_status
+ tifs-booking_response
+ tifs-freight_breach
+ tifs-freight_shipment_status

To_ISP_Operator

This data flow is sent to the ISP operator by the Provide Driver and Traveler Services function. It contains output of the parameters used in wide area information broadcast, yellow page services, trip planning and route selection as requested by the operator. It also contains the status of short range communications field equipment used for broadcasting traveler information to vehicles. The data flow consists of the following items each of which is defined in its own DDE:

tispo-route_selection_parameters
+ tispo-trip_planning_parameters
+ tispo-archive_status
+ tispo-travel_services_operator_information
+ tispo-data_collection_parameters
+ tispo-traveler_information_parameters
+ tispo-traveler_services_data
+ tispo-traveler_data_collected
+ tispo-trip_planning_data
+ tispo-trav_info_equip_status

To_Map_Update_Provider

This data flow is sent to the map update provider from several ITS functions. It contains requests for updates of the digitized map data used for display maps, as a navigable map database for on-vehicle or personal traveler guidance, and as a source of data for trip planning and transit route generation. The display map data is used as the background for the output of traffic, incident,

maintenance and construction activities, transit services and pollution data, the guidance data is used for the guidance of drivers and travelers on their selected routes, while the trip planning data is used for routes produced in response to traveler's trip requests. Static data is sent to the map update provider for use in preparing the actual digitized map data. Request for data to be imported into the Manage Archived Data function is included in this data flow along with the status that is returned to the terminator when the data is imported. The data flow also includes data collected by field equipment from traffic probes on vehicles. The data flow consists the following data items each of which is defined in its own DDE:

tmup-map_static_data
+ tmup-request_demand_display_update
+ tmup-request_emergency_display_update
+ tmup-request_incident_display_update
+ tmup-request_pollution_display_update
+ tmup-request_traffic_display_update
+ tmup-request_traveler_display_update
+ tmup-request_traveler_personal_display_update
+ tmup-request_traveler_personal_display_update_cost
+ tmup-traveler_map_update_cost_request
+ tmup-traveler_map_update_request
+ tmup-route_restrictions
+ tmup-transit_map_update_request
+ tmup-vehicle_map_update_cost_request
+ tmup-vehicle_map_update_request
+ tmup-map_archive_request
+ tmup-map_archive_status
+ tmup-emergency_route_map_request
+ tmup-request_m_and_c_display_update
+ tmup-request_m_and_c_route_map
+ tmup-fleet_map_update_request
+ tmup-request_info_provider_map_update
+ tmup-request_driver_display_update
+ tmup-request_driver_display_update_cost
+ tmup-traffic_probe_data

To_MC_Administrative_Systems

This data flow is sent from the Manage Maintenance and Construction function to the Maintenance and Construction Administrative Systems. It contains updates on work performance and project status, and requests for administrative information that could affect scheduling of maintenance and construction activities such as resupply status. The data flow consists of the following data items each of which is defined in its own DDE:

tmcas-m_and_c_administrative_request
+ tmcas-resupply_request
+ tmcas-m_and_c_work_performance
+ tmcas-work_zone_info

To_MC_Center_Personnel

This data flow contains the information that is provided by the Manage Maintenance and Construction function to assist the Maintenance and Construction Center Personnel in decision making. It includes presentation of data concerning environmental information, scheduled work plans and progress on maintenance and construction activities, road network information, fleet status, recommended actions from the automated maintenance decision support system, etc. The data flow consists of the following data items each of which is defined in its own DDE:

tmccp-archive_status
+ tmccp-env_and_weather_data
+ tmccp-env_info_for_dissemination
+ tmccp-mdss_recommended_actions
+ tmccp-m_and_c_activity_status
+ tmccp-processed_env_info
+ tmccp-resource_request
+ tmccp-barrier_system_status
+ tmccp-scheduled_work_plan
+ tmccp-vehicle_fleet_status
+ tmccp-view_of_road_network
+ tmccp-auto_treat_status
+ tmccp-work_zone_info
+ tmccp-work_zone_images_for_display
+ tmccp-emergency_response_plan
+ tmccp-alert_and_threats_info
+ tmccp-vehicle_speed_data

To_MC_Field_Personnel

This data flow contains the information that is provided by the Manage Maintenance and Construction function to assist the Maintenance and Construction Field Personnel in decision making. The data includes dispatch, routing, and road network conditions from the fleet management center, vehicle condition, operational status, materials status, field equipment status, intrusion alerts/warnings from the vehicle itself, and work zone information. The data flow consists of the following data items

each of which is defined in its own DDE:

tmcfp-environmental_sensor_info
+ tmcfp-mcv_operational_data
+ tmcfp-road_network_info
+ tmcfp-suggested_route
+ tmcfp-vehicle_condition_status
+ tmcfp-dispatch_info
+ tmcfp-work_zone_intrusion_warning
+ tmcfp-work_zone_on_board_intrusion_warning
+ tmcfp-work_zone_status_presentation
+ tmcfp-work_zone_intrusion_alert
+ tmcfp-work_zone_intrusion_alert_from_mcv
+ tmcfp-mdss_recommended_actions
+ tmcfp-materials_status_onboard
+ tmcfp-field_equip_status

To_Media

This data flow is sent by processes within the Manage Traffic, Manage Transit, Manage Maintenance and Construction, Provide Driver and Traveler Services, and Manage Emergency Services functions to the Media. It provides information on traffic flow conditions, traffic incidents, transit incidents and other emergencies, maintenance and construction activities, environmental information, plus a request for traveler information. The output data can be based upon a specific request from the Media, or as part of a subscription service where information of a predefined type is automatically output to the Media. It consists of the following data items each of which is defined in its own DDE:

tm-emergency_information
+ tm-incident_data
+ tm-incident_information
+ tm-traffic_data
+ tm-traffic_video_images
+ tm-traffic_information
+ tm-transit_emergency_information
+ tm-transit_incident_information
+ tm-transit_schedule_deviations_to_media
+ tm-transit_vehicle_deviations
+ tm-traveler_information_request
+ tm-pollution_data
+ tm-m_and_c_work_plans_for_media
+ tm-roadway_maint_status_for_media
+ tm-work_zone_images
+ tm-work_zone_info
+ tm-road_weather_info

To_Multimodal_Crossings

This data flow is sent to the multi-modal crossings (e.g., drawbridges, ferries) from the Manage Traffic function to acknowledge that a previous request for its closure to road vehicles has been received and is being acted upon.

tmmc-crossing_clear_at_highways
+ tmmc-stop_alternate_mode_at_highways
+ tmmc-highway_equipment_status
+ tmmc-crossing_clear_at_roads
+ tmmc-stop_alternate_mode_at_roads
+ tmmc-road_equipment_status

To_Multimodal_Transportation_Service_Provider

This data flow is sent to the multimodal transportation service provider from the Provide Driver and Traveler Services, Manage Transit, and Manage Archived Data functions. It contains either a request for details of the services available to move travelers by means other than road vehicles, e.g. rail, air, sea, river, bike routes, etc., or changes to the arrival time(s) of transit services caused by schedule deviations. It also contains work plan information for maintenance and construction activities. The data flow consists of the following data items each of which is defined in its own DDE:

tmtsp-air_services_request
+ tmtsp-ferry_services_request
+ tmtsp-rail_services_request
+ tmtsp-transit_arrival_deviations
+ tmtsp-transit_service_data
+ tmtsp-multimodal_archive_request
+ tmtsp-multimodal_archive_status
+ tmtsp-m_and_c_work_plans_for_mtsp
+ tmtsp-non_motorized_services_request
+ tmtsp-confirm_multimodal_service
+ tmtsp-individual_service_request
+ tmtsp-service_request

To_Other_Archives

This data flow is sent from the Manage Archived Data function to an Archive that may be located outside the geographic area of operation or perhaps an archive of slightly different data from that managed by the local archive supporting the function. It contains the following data item which is defined in its own DDE:

toa-archive_coordination_data

To_Other_CVAS

This data flow is sent to the other commercial vehicle administration system from the Manage Commercial Vehicles function and contains border clearance, safety, credentials, and fee information about commercial vehicles located within its jurisdictional boundaries. This data flow consists of the following data items each of which is defined in its own DDE:

tocvas-border_clearance
+ tocvas-data_table
+ tocvas-credentials_status
+ tocvas-credentials
+ tocvas-route_restrictions
+ tocvas-safety_inspection
+ tocvas-safety_status
+ tocvas-cv_driver_record
+ tocvas-citation_info
+ tocvas-accident_report
+ tocvas-permit_coordination

To_Other_Data_Sources

This data flow to the Other Data Sources terminator contains a request for data that may be available for import into the Manage Archived Data function that is not available from sources within ITS. This data flow also contains a status flow that is returned to the source indicating whether the data was received properly. This data flow consists of the following items each of which is defined in its own DDE:

tods-other_data_source_archive_request
+ tods-other_data_source_archive_status

To_Other_Emergency_Management

This data flow is sent to the other emergency centers by the Manage Emergency Services function to advise them of incidents that are taking place in locations that are in the area served by the local function and hence outside their area of operations. It consists the following data items each of which is defined in its own DDE:

toem-incident_details
+ toem-incident_response_coordination
+ toem-mayday_emergency_data
+ toem-verified_image_match
+ toem-threat_info
+ toem-wide_area_alert_notification
+ toem-alert_notification_status
+ toem-secure_area_surveillance
+ toem-secure_area_sensor_data
+ toem-threat_analysis_results
+ toem-request_for_emergency_support
+ toem-response_for_emergency_support
+ toem-disaster_response_plan_coordination
+ toem-evacuation_information_for_other_em
+ toem-evacuation_plan_coordination
+ toem-evacuation_resource_request
+ toem-transportation_system_status_for_disaster
+ toem-transportation_system_status_for_evacuation
+ toem-evacuation_status
+ toem-incident_command_information_coordination
+ toem-evacuation_resource_response
+ toem-emergency_resource_response
+ toem-emergency_resource_request

To_Other_ISP

This data flow is sent from the Provide Driver and Traveler Services function to another information service provider (ISP). In the case of request_data and data_supply, this represents an Other ISP located outside the geographic area of operation of the local ISP supporting the function. For the case of the other data flows, this represents one ISP (possibly a wholesaler ISP) sharing information with another. It contains the following data items each of which is defined in its own DDE:

toisp-traffic_data
+ toisp-road_weather_data
+ toisp-road_network_inventory
+ toisp-incident_data
+ toisp-transit_data
+ toisp-transit_fare_data

+ toisp-multimodal_data
+ toisp-emergency_data
+ toisp-parking_data
+ toisp-traffic_images

To_Other_MCM

This data flow is used by the Manage Maintenance and Construction function to send data to other maintenance and construction facilities whose areas of operation are outside those of the local facility. It consists of the following data items each of which is defined in its own DDE:

tomcm-resource_coordination_data
+ tomcm-m_and_c_work_plans
+ tomcm-m_and_c_plan_feedback
+ tomcm-roadway_maint_status
+ tomcm-env_sensor_data
+ tomcm-road_weather_info
+ tomcm-work_zone_images
+ tomcm-work_zone_info

To_Other_MCV

This data flow is used by vehicles within the Manage Maintenance and Construction function to send data to other maintenance and construction vehicles whose areas of operation are outside those of the local facility. The data flow consists of the following data items each of which is defined in its own DDE:

tomcv-vehicle_operational_data
+ tomcv-work_zone_intrusion_detection_on_board
+ tomcv-work_zone_intrusion_alert_on_board
+ tomcv-work_zone_intrusion_warning_to_crew
+ tomcv-crew_movements
+ tomcv-env_conditions

To_Other_Parking

This data flow is sent from the Manage Traffic function and contains reports of the transactions and operational data that can be shared among parking lots. It consists of the following data items each of which is defined in its own DDE:

top-parking_coordination_data

To_Other_Payment_Administration

This data is sent to the Other Payment Administration terminator from the Provide Electronic Payment Services function. It contains the following data items each of which is defined in its own DDE:

topa-toll_pricing_data
+ topa-toll_charges_reconciliation_data
+ topa-vmt_coordination_data

To_Other_RS

This data flow is sent to the Other RS terminator and is used to transfer data from sensors and control to other sensors, to send data to roadway information systems (e.g., dynamic message signs), and to control roadside indicator devices such as intersection controllers and ramp meter controllers. It consists of the following data items each of which is defined in its own DDE:

tors-roadway_info_data_from_devices
+ tors-roadway_info_data_from_sensors
+ tors-sensor_control
+ tors-sensor_data
+ tors-sensor_status
+ tors-device_control
+ tors-device_status
+ tors-signal_control
+ tors-signal_status
+ tors-signal_fault

To_Other_Traffic_Management

This data flow is used by the Manage Traffic function to send data and device control requests to Other Traffic Management centers whose areas of operation are outside those of the local center. It consists of the following data items each of which is defined in its own DDE:

totm-device_control_request
+ totm-traffic_data
+ totm-roadway_detours_and_closures
+ totm-road_weather_data
+ totm-road_network_inventory_and_status
+ totm-disaster_network_status
+ totm-network_status_for_evacuation
+ totm-current_event_data

+ totm-planned_event_data
+ totm-traffic_image_data
+ totm-device_status
+ totm-device_inventory
+ totm-device_data
+ totm-evacuation_information
+ totm-traffic_control_strategy_for_disaster_or_evacuation
+ totm-permit_coordination_for_traffic

To_Other_Transit_Management

This data flow is sent to Other Transit Management centers by the Manage Transit function and contains data that is to be shared with the other transit centers. It consists of the following data item which is defined in its own DDE:

totrm-transit_traveler_information
+ totrm-transit_fare_data_coordination
+ totrm-transit_service_data
+ totrm-individual_service_request

To_Other_Vehicle

This data flow is used by the provide Vehicle Monitoring and Control function to send safety and platooning data to surrounding vehicles. The data flow consists of the following data items each of which is defined in its own DDE:

tov-safety_msg_data_to_other_vehicles
+ tov-platoon_data_to_other_vehicle
+ tov-safety_status_to_other_vehicle

To_Parking_Operator

This data flow is used by the Manage Traffic function to send data to a parking lot operator with instructions to change the operational state of the parking lot, e.g. close the lot. It consists of the following data item which is defined in its own DDE:

tpo-change_lot_state
+ tpo-archive_status
+ tpo-parking_lot_charge_change_request
+ tpo-parking_lot_status
+ tpo-request_advanced_parking_payment
+ tpo-transaction_reports

To_Payment_Administrator

This data flow is sent from the Provide Electronic Payment Services function to the payment administrator. It contains the requests for changes in road charging prices and policies, toll prices, and advanced tolls, plus new toll price data. The data flow consists of the following data items each of which is defined in its own DDE:

tpa-request_advanced_toll
+ tpa-toll_price_changes_request
+ tpa-transaction_reports
+ tpa-archive_status
+ tpa-alert_notification
+ tpa-vmt_data

To_Pedestrians

This data flow is sent by the Manage Traffic function to pedestrian crossings to acknowledge that a previous request to enable pedestrians to cross the road or highway has been received, to action that request, and to provide textual messages. It consists of the following data items each of which is defined in its own DDE:

tp-cross_road
+ tp-cross_request_received
+ tp-dms_indication

To_Public_Health_System

Requests from the Manage Emergency Services function to the Public Health System terminator concerning how best to respond to emergencies involving biological or other medically related situations. This data flow consists of the following items each of which is defined in its own DDE:

tphs-public_health_request
+ tphs-public_health_evacuation_request

To_Rail_Operations

This data flow is sent to a railroad operated operations center (or centers) from an ITS Manage Traffic or Manage Maintenance and Construction function. It contains information about scheduled and/or planned highway events or planned highway activity that may be relevant to rail traffic management (e.g. HRI maintenance schedules, HAZMAT incidents near railroads, potential threats, etc.). This is typically informational data and is not required for timely operation of grade crossing protection and safety devices. It does however have a mechanism for notification of incidents or situations that are not normally detected and reported at HRIs and through wayside rail equipment. This flow also contains feedback from the Manage Maintenance and Construction function regarding railroad schedules. This data flow consists of the following data items each of which is defined in its own DDE:

tro-event_schedules
+ tro-incident_notification
+ tro-equipment_status
+ tro-m_and_c_work_plans_for_rail
+ tro-railroad_schedule_feedback
+ tro-road_weather_info
+ tro-incident_response_status
+ tro-threat_info
+ tro-incident_information
+ tro-disaster_response_plan_coordination
+ tro-evacuation_plan_coordination
+ tro-evacuation_information_for_rail
+ tro-transportation_system_status_for_disaster
+ tro-transportation_system_status_for_evacuation

To_Shelter_Providers

This data flow is sent from the Manage Traffic, Manage Emergency Services, and Provide Driver and Traveler Services functions to shelter providers and includes requests for shelter information, availability, location, type, etc. It contains the following data items each of which is defined in its own DDE:

tsp-shelter_information_request
+ tsp-shelter_evacuation_information
+ tsp-evacuation_traveler_information

To_Storage_Facility

This data flow is sent from the Manage Maintenance and Construction function to the Storage Facility and contains a request for status and general inventory information regarding the materials and equipment available at the facility. The data flow consists of the following data items each of which is defined in its own DDE:

tsf-materials_status_request
+ tsf-equipment_availability_request

To_Surface_Transportation_Weather_Service

This data flow to the Surface Transportation Weather Service contains the environmental sensor data, environmental probe data, asset treatment for road condition forecasts, road condition and weather information from other sources, and requests for transportation related weather information. This data flow also contains requests for data from the Manage Archived Data function. This data flow consists of the following items each of which is contained in its own DDE:

tstws-asset_treatment_info
+ tstws-env_sensor_data
+ tstws-env_info
+ tstws-trans_weather_archive_status
+ tstws-archive_request
+ tstws-env_sensor_data_from_traffic
+ tstws-roadway_env_sensor_status
+ tstws-roadway_env_sensor_data
+ tstws-trans_weather_info_request
+ tstws-vehicle_env_probe_data
+ tstws-vehicle_env_probe_status
+ tstws-env_probe_info_from_isp

To_Telecom_System_for_Traveler_Info

This data flow is sent to the Telecommunications Systems for Traveler Information terminator and contains tailored information for a single 511 caller, or region-specific traveler information suitable for batch upload to a 511 system. This data flow includes information such as traffic conditions, work zone and roadway maintenance information, roadway environment conditions, weather and event information, transit schedules, deviations, and fares, yellow pages information, current ferry and rail schedules, and airport status. The data flow consists of the following data items each of which is defined in its own DDE:

ttsti-telecomm_batch_regional_traveler_information
+ ttsti-telecomm_caller_traveler_information
+ ttsti-telecomm_alert_notification

To_Toll_Operator

This data flow is sent from the Provide Electronic Payment function to the operator at a toll plaza and contains previously requested transaction reports. It consists of the following data items each of which is defined in its own DDE:

tto-transaction_reports
+ tto-alert_notification

To_Traffic_Operations_Personnel

This data flow is used by various processes within the Manage Traffic function to send data on traffic conditions, weather conditions, incidents, incident responses, safeguard and barrier system status, field equipment fault and repair status, traffic and travel demand data, and requests from other traffic management centers for remote control of field equipment to traffic

operations personnel. It consists of the following data items each of which is defined in its own DDE, and some of which are groups of output flows belonging to the same facility:

ttop-current_field_equip_fault_data
+ ttop-demand_management_outputs_FB
+ ttop-incident_management_outputs_FB
+ ttop-traffic_control_information_display
+ ttop-video_image_output
+ ttop-resource_response
+ ttop-wrong_way_detection
+ ttop-weather_information
+ ttop-archive_status
+ ttop-disaster_response_plan_input_request
+ ttop-evacuation_plan_input_request
+ ttop-barrier_safeguard_status
+ ttop-lighting_system_status
+ ttop-wide_area_alert_notification
+ ttop-traveler_information_restrictions
+ ttop-deactivate_information_restrictions
+ ttop-vehicle_signage_status
+ ttop-roadway_info_status
+ ttop-roadway_incident_status
+ ttop-vehicle_speed_sensor_data
+ ttop-device_control_request_from_other_center
+ ttop-env_sensor_status
+ ttop-video_device_status
+ ttop-dynamic_lane_status
+ ttop-roadway_warning_system_status

To_Transit_Operations_Personnel

This data flow is sent from the Manage Transit function to the transit operations personnel. It contains information on potential incidents, video images and transit fare collection data. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output. The data flow consists of the following data items each of which is defined in its own DDE:

ttrop-work_schedule
+ ttrop-archive_status
+ ttrop-coordination_request
+ ttrop-emergency_plan_response
+ ttrop-emergency_request
+ ttrop-infrastructure_integrity_status
+ ttrop-media_parameters
+ ttrop-transit_vehicle_inventory
+ ttrop-parameters
+ ttrop-paratransit_service
+ ttrop-parking_information
+ ttrop-passenger_loading_error
+ ttrop-potential_incidents_alarm
+ ttrop-proposed_corrections
+ ttrop-response_parameter_output
+ ttrop-technician_information
+ ttrop-traffic_and_maint_and_const_data
+ ttrop-transaction_reports
+ ttrop-transit_fare_output
+ ttrop-transit_operations_information
+ ttrop-transit_services_output
+ ttrop-transit_vehicle_data
+ ttrop-transit_vehicle_disable_status
+ ttrop-transit_vehicle_maintenance_information
+ ttrop-transit_vehicle_operator_information
+ ttrop-weather_information
+ ttrop-wide_area_alert_notification
+ ttrop-transp_information_for_transit_operations

To_Transit_Vehicle_Operator

This data flow is sent to the transit vehicle operator and the information is specific to this type of operator and is not relevant to drivers of other types of vehicle(s). The data flow consists of the following data items each of which is defined in its own DDE:

ttvo-alert_notification
+ ttvo-batch_mode_data_transfer_status
+ ttvo-corrective_instructions
+ ttvo-paratransit_information
+ ttvo-request_fare_transaction_mode_set_up
+ ttvo-route_assignments

+ ttvo-secure_transit_vehicle_emergency_response
+ ttvo-transit_vehicle_disable_status
+ ttvo-transit_vehicle_schedule_deviations
+ ttvo-secure_transit_vehicle_surveillance

To_Travel_Services_Provider

This data flow is sent from the Provide Driver and Traveler Services function and contains requests for information needed by a traveler. It consists of the following data items each of which is defined in its own DDE:

ttsp-provider_update_confirm
+ ttsp-transaction_request
+ ttsp-travel_services_info_request

To_Traveler

This data flow is sent from the Provide Driver and Traveler Services function and contains information and guidance data requested by the traveler. The output may be in audio or visual form, with the latter being available in a variety of formats depending on the device being used by the traveler, e.g. personal device, kiosk, home computer, etc. It is therefore possible for the visual output to appear on a variety of different types of displays, or hardcopy (paper) output. The data flow consists of the following data items each of which is defined in its own DDE:

tt-advisory_information
+ tt-emergency_message
+ tt-extra_trip_data_request
+ tt-guidance
+ tt-guidance_input_request
+ tt-guidance_map_update_response
+ tt-guidance_route_details
+ tt-other_services_roadside_confirmed
+ tt-other_services_vehicle_confirmed
+ tt-personal_extra_trip_data_request
+ tt-personal_trip_planning_responses
+ tt-remote_emergency_response
+ tt-roadside_access_message
+ tt-roadside_payment_confirmed
+ tt-secure_area_broadcast_message
+ tt-secure_transit_vehicle_broadcast_message
+ tt-secure_transit_vehicle_emergency_response
+ tt-transit_information
+ tt-transit_vehicle_information
+ tt-traveler_information
+ tt-personal_traveler_information
+ tt-remote_traveler_information
+ tt-trip_planning_responses
+ tt-vehicle_access_message
+ tt-vehicle_payment_confirmed

To_Traveler_Card

This data flow is sent to the traveler card / payment instrument terminator by the Provide Electronic Payment Services function. It consists of different types of data: that which requests payment for a service from the credit stored by the instrument itself, that which gives notice that payment for the service will charged to the credit identity provided by the instrument, that which requests information concerning traveler services based on the traveler's identity and information stored on the terminator device, and the updated information supplied to the traveler's device. The data flow consists of the following data items each of which is defined in its own DDE:

ttc-debited_fare_payment_at_roadside
+ ttc-debited_payment_at_parking_lot
+ ttc-debited_payment_at_personal_device
+ ttc-debited_traveler_payment_at_roadside_for_transit
+ ttc-debited_traveler_payment_at_vehicle
+ ttc-debited_traveler_payment_at_roadside
+ ttc-debited_payment_at_toll_plaza
+ ttc-debited_driver_payment_at_vehicle
+ ttc-debited_payment_on_transit_vehicle
+ ttc-request_fare_payment_at_roadside
+ ttc-request_fare_payment_on_transit_vehicle
+ ttc-request_payment_at_parking_lot
+ ttc-request_payment_at_toll_plaza
+ ttc-request_traveler_parking_payment
+ ttc-debited_traveler_parking_payment
+ ttc-traveler_personal_information_update
+ ttc-traveler_remote_personal_information_update
+ ttc-request_vmt_payment
+ ttc-debited_vmt_payment

To_Wayside_Equipment

This data flow represents information for trains or hi-rail vehicles approaching a specific highway grade crossing and their crews. It is provided by HRI traffic control elements to rail owned and operated wayside interface equipment (train signaling circuits, automatic control interfaces, local connections to centralized sites via railroad communications networks, etc.). This is a time critical flow and requires the most direct communications path available to a train approaching a grade crossing. This data flow consists of the following data items each of which is defined in its own DDE:

twe-stop_train_indication
+ twe-stop_highway_indication
+ twe-hri_status

To_Weather_Service

This data flow to the Weather Service Terminator contains the request for data to be imported into the archive and the status of the import process. This data flow also contains environmental sensor data collected by ITS processes and environmental probe data from vehicles that is provided to the Weather Service. This data flow consists of the following items each of which is contained in its own DDE:

tws-weather_archive_request
+ tws-weather_archive_status
+ tws-env_sensor_data
+ tws-env_sensor_data_from_traffic
+ tws-env_info
+ tws-roadway_env_sensor_data
+ tws-roadway_env_sensor_status
+ tws-vehicle_env_probe_data
+ tws-vehicle_env_probe_status
+ tws-env_probe_info_from_isp

toa-archive_coordination_data

This data flow represents the data that is to be shared between different Archive systems. Information included on this interface may include the requests for data that is located in other systems. This data flow also represents the flow of data from the local archive to the other archive system.

tocvas-accident_report

This data flow is sent to the other commercial vehicle administration system from the Manage Commercial Vehicles function and contains data about accidents involving commercial vehicles and their drivers.

tocvas-border_clearance

This data flow is sent to other commercial vehicle administration system from the Manage Commercial Vehicle function. It contains information about the status of the movement of goods across international borders with corresponding trip identification numbers.

tocvas-citation_info

This data flow is sent to the other commercial vehicle administration system from the Manage Commercial Vehicles function and contains data about issued citations.

tocvas-credentials

This data flow is sent to other commercial vehicle administration system from the Manage Commercial Vehicle function and contains full credentials information.

tocvas-credentials_status

This data flow is sent to other commercial vehicle administration system from the Manage Commercial Vehicle function. It contains information regarding the status of credentials information including registration, licensing, check flags, and electronic screening enrollment data.

tocvas-cv_driver_record

This data flow provides another commercial vehicle administration agency with a commercial vehicle drivers record. The data flow consists of the following items each of which is defined in its own DDE:

cv_driver_number
+ cv_driver_credentials
+ cv_driver_license_citations
+ cvo_citation_data
+ cvo_violation
+ cv_driver_identity_characteristic_key

tocvas-data_table

This data flow is sent to the other commercial vehicle administration system from the Manage Commercial Vehicles function and contains data about required taxes and credential fees.

tocvas-permit_coordination

This data flow contains information for coordination from one Commercial Vehicle Administration System to another for the purposes of issuing a commercial vehicle permit.

tocvas-route_restrictions

This data flow contains road segments and areas (surrounded by road segments) that do not allow the transport of security sensitive hazmat cargoes or may indicate other restrictions (such as height or weight limits) as determined by a local agency for the use of a remote commercial vehicle administration agency. The data flow consists of the following items each of which is defined in its own DDE:

hazmat_route_restrictions
+ current_asset_restrictions

tocvas-safety_inspection

This data flow is sent to the other commercial vehicle administration system from the Manage Commercial Vehicle function. It contains a report containing results of commercial vehicle safety inspections.

tocvas-safety_status

This data flow is sent to the other commercial vehicle administration system from the Manage Commercial Vehicle function. It contains safety information such as safety ratings, inspection summaries, and violation summaries.

tods-other_data_source_archive_request

This data flow from the Manage Archived Data function to the Other Data Sources terminator contains the request for data collected and stored by sources external to ITS that may be of interest to archived data users systems that is not included in data from sources within the ITS functions. This data flow includes request for a catalog of the information available as well as the request for the data itself. This data flow consists of the following items each of which is defined in its own DDE:

other_data_source_catalog_request
+ user_defined_data_request

tods-other_data_source_archive_status

This data flow is sent from the Manage Archived Data function to the Other Data Sources terminator. It is the status returned when imported archive data is sent from the terminator to the Manage Archived Data function.

toem-alert_notification_status

This data flow contains information indicating the status of the alert sent to other emergency centers including the information systems that are being used to provide the alert notification.

toem-disaster_response_plan_coordination

This data flow is used to coordinate disaster response plans with other emergency management centers. It contains information regarding the nature of the disaster, and the preplanned response plan for the other center. Given this information, the other center can than provide a plan that it will use that is appropriate for the given disaster. The data flow consists of the following data items which are defined in their own DDE:

emergency_input_for_disaster
+ oem_preplanned_disaster_response_plan
+ evacuation_status_for_disaster_response
+ emergency_center_identity

toem-emergency_resource_request

This flow contains a request for another emergency management center in supporting an incident, disaster, or other emergency. It contains a set of resources that emergency management is planning on utilizing and has been told are available for use. The data flow consists of the following data item which is defined in its own DDE:

em_resource_request
+ emergency_center_identity

toem-emergency_resource_response

This flow contains a response to another emergency management center for support of an incident, disaster, or other emergency. The data flow consists of the following data item which is defined in its own DDE:

em_resource_response

toem-evacuation_information_for_other_em

This flow contains information regarding the evacuation for other emergency management centers. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule
+ emergency_center_identity

toem-evacuation_plan_coordination

This data flow is used to coordinate evacuation plans with other emergency management centers. It contains information regarding the nature of the disaster or incident that has required an evacuation, and the preplanned evacuation plan for the center. Given this information, the other emergency management center can than update and provide a plan that it will use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

emergency_center_identity

+ emergency_evacuation_data
+ evacuation_status_report
+ oem_preplanned_evacuation_plan

toem-evacuation_resource_request

This flow contains a request for another emergency management center in supporting an evacuation. It provides a set of resources that evacuation management is planning on utilizing and has been told are available for use. The data flow consists of the following data item which is defined in its own DDE:

em_resource_request
+ emergency_center_identity

toem-evacuation_resource_response

This flow contains a response to another emergency management center for support of an evacuation. The data flow consists of the following data item which is defined in its own DDE:

em_resource_response

toem-evacuation_status

This data flow contains a status of the response to an evacuation being performed by the emergency management center to another emergency management center. It includes information regarding response to requests for assistance in an evacuation. In general it provides information regarding how well the emergency management center is able to respond to the evacuation, and may be used to improve on the current evacuation plan.

toem-incident_command_information_coordination

This data flow contains information about the management of an incident to other emergency management. It provides the detailed status for an emergency response that is in progress and includes a detailed view of the assets which are deployed for the emergency, the current emergency status and any HAZMAT information not already sent. It contains the following data items each of which are defined in their own DDE:

incident_number
+ emergency_center_identity
+ incident_severity
+ incident_vehicle_status
+ incident_status
+ cf_hazmat_vehicle_information

toem-incident_details

This data flow is sent to the other emergency centers from the Manage Emergency Services function and contains data about an incident, disaster, or other emergency that has been reported in the area served by the local function and therefore outside their area of operation. It consists of the following data items each of which is defined in its own DDE:

emergency_center_identity
+ incident_confidence_level
+ incident_location
+ incident_number
+ incident_report_source
+ incident_reported_time
+ incident_description
+ incident_start_time
+ incident_duration
+ incident_severity
+ incident_status
+ incident_traffic_impact
+ incident_type

toem-incident_response_coordination

This data flow supports coordination of an incident response between allied response agencies. It supports the coordination of response procedures, status and resources between agencies, and includes emergency response plans. It consists of the following data items which are defined in their own DDEs:

incident_response_status
+ agency_incident_response_procedures
+ incident_resource_coordination
+ hand_off_coordination
+ staging_area
+ emergency_center_identity

toem-mayday_emergency_data

This data flow is sent to the other emergency centers from the Manage Emergency Services function. It contains information about an emergency that was reported by a Mayday system, verified by the Mayday service provider, and determined to require a response from a public safety agency or another authorized responder. It consists of the following data items, each of which is contained in its own DDE:

emergency_request_driver_details
+ emergency_request_vehicle_details
+ mayday_agency_ID
+ driver_status_update
+ vehicle_status_update

toem-request_for_emergency_support

This flow contains a request from emergency management for other emergency management to support an emergency event. The data flow consists of the following data items which are defined in their own DDE:

oem_disaster_response_plan
+ emergency_center_identity

toem-response_for_emergency_support

This flow contains a status response from emergency management for other emergency management. It informs other emergency management of how emergency management is responding to a request for supporting an emergency event. The data flow consists of the following data items which are defined in their own DDE:

emergency_status_report_for_oem
+ emergency_center_identity

toem-secure_area_sensor_data

This data flow is sent to other emergency centers by the Manage Emergency Services function to provide sensor data from secure areas located in the area served by the local function. This flow includes raw data from threat sensors, objection detection sensors, intrusion and motion detection sensors, and infrastructure integrity sensors, as well as data produced by processing that sensor data. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ sensor_identity
+ emergency_center_identity
+ infrastructure_integrity_sensor_data_collected
+ infrastructure_integrity_sensor_processed_data
+ threat_sensor_data_collected
+ threat_sensor_processed_data
+ object_sensor_data_collected
+ object_sensor_processed_data
+ intrusion_motion_sensor_data_collected
+ intrusion_motion_sensor_processed_data}

toem-secure_area_surveillance

This data flow is sent to other emergency centers by the Manage Emergency Services function to provide surveillance data from secure areas located in the area served by the local function. This flow includes high resolution video images, audio, and data produced by processing those images and audio. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image
+ secure_audio
+ secure_area_images
+ secure_video_image_data
+ secure_audio_data
+ emergency_center_identity}

toem-threat_analysis_results

This data flow is sent from the Manage Emergency Services function to other emergency centers and contains detailed results of threat analysis performed on data collected from secure areas within the area serviced by the local function. The secure area may include those frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and other emergency centers. This data flow includes the analysis input parameters, the sources of the collected data and timestamps, as well as the final analysis results.

toem-threat_info

This data flow is sent from the Manage Emergency Services function to other emergency centers and contains information about threats detected in the transportation network serviced by the local function. This threat is based on analysis of data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ emergency_center_identity

+ threat_severity
+ geographical_area
+ threat_duration}

toem-transportation_system_status_for_disaster

This data flow consists of a report of the current status of the transportation system. This data is reported to Other Emergency Management terminators as an ongoing status during a disaster. The data flow consists of the following data items each of which is defined in its own DDE:

disaster_transportation_system_status
+ emergency_center_identity

toem-transportation_system_status_for_evacuation

This data flow consists of a report of the current status of the transportation system. This data is reported to the Other Emergency Management terminator as an ongoing status during an evacuation. The data flow consists of the following data items each of which is defined in its own DDE:

evacuation_transportation_system_status
+ emergency_center_identity

toem-verified_image_match

This data flow is sent to other emergency centers by the Manage Emergency Services function and contains the results of image matching analysis from the secure area served by the local function. This flow indicates whether an image has matched an image in the database of known images. The image data is obtained from areas frequented by travelers, and from areas typically away from travelers. The data flow consists of the following data items each of which is defined in its own DDE:

timestamp
+ emergency_center_identity
+ station_id
+ transit_vehicle_location
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ image_match_confirmation
+ image_id

toem-wide_area_alert_notification

This data flow is sent to the other Emergency Management centers providing notification information of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction. This data flow includes a list of the types of alerts detected, the locations, and any other details pertinent to the alert, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{alert_type
+ alert_severity
+ geographical_area
+ alert_duration
+ emergency_center_identity}

toisp-emergency_data

This data flow is used to provide emergency data and is sent to another ISP (e.g. a wholesaler of information). The data flow consists of the following items each of which is defined in its own DDE:

source_identity
+ wide_area_alert_notification_for_travelers
+ care_facility_status_for_isp
+ evacuation_data_for_isp
+ incident_information
+ shelter_information_to_travelers
+ disaster_transportation_system_status_for_isp
+ evacuation_transportation_system_status_for_isp
+ traffic_incident_data_for_isp
+ transit_evacuation_data_for_isp

toisp-incident_data

This data flow contains information about events (or incidents) currently active or planned in the region of the ISP. It consists of the following data items each of which is defined in its own DDE:

source_identity
+ incident_description
+ incident_location
+ incident_severity
+ incident_traffic_impact
+ incident_type
+ planned_incident_response
+ planned_events_data

toisp-multimodal_data

This data flow is used to provide data on the current state of multimodal transportation operations to another ISP (e.g. a retailer of information). The data flow also contains travel service provider data. The data flow consists of the following items each of which is defined in its own DDE:

source_identity
+ air_services_details
+ ferry_services_details
+ rail_services_details
+ non_motorized_services_details
+ travel_services_data

toisp-parking_data

This data flow contains information for another Information Service Provider (e.g. a retailer of information) and contains static and dynamic parking information. This data consists of the following items each of which is defined in its own DDE:

source_identity
+ static_parking_information_for_isp
+ dynamic_parking_information_for_isp
+ parking_lot_availability

toisp-road_network_inventory

This data flow comprises data about each segment in the road (surface street) network and highway network and the way in which they fit together, i.e. which segment is joined to which, both upstream and downstream, plus identification of those links that interface from road to highway network. The data flow consists of the following data items each of which is defined in its own DDE:

source_identity
+ route_segment_details
+ link_data_for_guidance

toisp-road_weather_data

This data flow contains information about road weather conditions and road conditions for transmission to another ISP. The data flow consists of the following data items each of which is defined in its own DDE:

source_identity
+ weather_data_for_centers

toisp-traffic_data

This data flow contains a complete (or partial) set of the traffic data which has been created through fusion of available data sources. This includes current, long term (historical) and predicted link data. This data flow allows one ISP to act as a wholesaler and provide information to other ISPs. The data flow consists of the following items each of which is defined in its own DDE:

source_identity
+ traffic_data_for_centers

toisp-traffic_images

This data flow contains traffic image data sent to another ISP. It consists of the following data items each of which is defined in its own DDE:

source_identity
+ traffic_video_image_data

toisp-transit_data

This data flow is used to provide data on the current state of transit operations (regarding both incidents and transit vehicle schedule status) and is sent to another ISP (e.g. a wholesaler of information). The data flow consists of the following items each of which is defined in its own DDE:

source_identity
+ transit_running_data_for_advisory_output
+ transit_incident_data
+ traveler_transit_information_advisory_data

toisp-transit_fare_data

This data flow is used to provide data on the current transit prices and fares and is sent to another ISP (e.g. a wholesaler of information). The data flow consists of the following items each of which is defined in its own DDE:

source_identity
+ transit_fare_data

toll_archive_catalog

This data flow is used to provide the description of the data contained in the collection of toll data that has been stored and made available for the Manage Archived Data function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g., time range of entries, number of entries; or sample data products.

toll_archive_catalog_request

This data flow from the Manage Archived Data function contains the request for a catalog of the data held by the Provide Electronic Payment Services function. The request for a catalog may include either or both the description of the types of data the archive is interested in or a time frame over which the requested information may be available.

toll_archive_data

This data flow from Provide Electronic Payment Services to Manage Archived Data contains the archive data stored in the Provide Electronic Payment Services function along with the meta data describing the data as collected from field or operational equipment. This data flow is made up of operational data concerning electronic toll collection and pricing. This data flow is made up of the following items each of which is defined in its own DDE:

toll_archive_catalog
+ toll_data_for_archive

toll_archive_data_request

This data flow from the Manage Archived Data function contains the request for the data held by the Provide Electronic Payment Services function. The request for data may include either or both the description of the data required or a timeframe over which the requested information may be available.

toll_archive_input

This data flow from the Manage Archived Data function to the Provide Electronic Payment Services function contains the request for the catalog of data and the data itself. This flow also contains a report of status from the archive function. This data flow consists of the following data items each of which is defined in its own DDE:

toll_archive_request
+ toll_archive_status

toll_archive_request

This data flow from the Manage Archived Data function contains the request for data collected and stored by Provide Electronic Payment Services function. The request can be a request for a catalog of the data held by the function or a request for the data itself. This data flow consists of the following data items each of which is defined in its own DDE:

toll_archive_catalog_request
+ toll_archive_data_request

toll_archive_status

This data flow is sent from the Manage Archived Data function to the Provide Electronic Payment Services function. It is the status returned when toll archive data is sent to the Manage Archived Data function.

toll_bad_payment_check_request

This data flow is used within the Provide Electronic Payment Services function and contains a request for a check that a driver requesting toll payment is not on the list of bad payers. In the case of commercial vehicles it will be the carrier that is used for the check. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ cv_carrier_number

toll_bad_payment_check_response

This data flow is used within the Provide Electronic Payment Services function and contains the response to a request for a check that a driver requesting toll payment is not on the list of bad payers. In the case of commercial vehicles it will be the carrier that is used for the check. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ cv_carrier_number

toll_charge

This data flow is used within the Provide Electronic Payment Services function and contains a vehicle identity, credit identity, stored credit and a toll cost. The credit identity and stored credit data items are used to enable the cost to be directed at the owner of the vehicle or the vehicle driver. The data flow consists of the following data items each of which is defined in its own DDE:

cv_carrier_number
+ cv_vehicle_number
+ toll_cost
+ toll_route_segments
+ toll_vehicle_payment_data
+ vehicle_identity
+ vehicle_type

toll_cost

This data flow is used within the Provide Electronic Payment Services function and defines the cost of the toll for a particular vehicle through a toll plaza, thus giving it the ability to use the toll segment governed by the toll plaza.

toll_data_archive

This data store is used within the Provide Electronic Payment Services function to hold data that is to be archived and made available to the Manage Archived Data function. This data includes information, such as, toll operational data and toll price data as well as statistics and metrics data. The data store contains the following data items each of which is defined in its own DDE:

toll_archive_catalog
+ toll_operational_data
+ toll_operational_data_attributes
+ toll_prices_for_archive
+ toll_prices_for_archive_attributes

toll_data_for_archive

This data flow is sent from the Provide Electronic Payment Services to the Manage Archived Data function. It is used to provide detailed data on the operations of the electronic toll collection process. This data flow consists the following items each of which is defined in its own DDE:

toll_operational_data
+ toll_operational_data_attributes
+ toll_prices_for_archive
+ toll_prices_for_archive_attributes

toll_operational_data

This data flow contains data about the cost of toll segments and the number of users of those segments during the time period since the data was last sent. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ list_size
+ list_size{toll_cost + toll_segment_identity + toll_segment_users}
+ time

toll_operational_data_attributes

This data flow is used to provide meta data included with toll operational data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

toll_payment_confirmation

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that the previous request for the cost of the current toll to be deducted from the credit currently stored by the driver's traveler card / payment instrument has been completed successfully. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag

toll_payment_debited

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that the cost of the current toll will be deducted by the financial institution from the credit identity previously provided by the traveler card / payment instrument being used by the driver. It is only sent when a credit identity has been previously received from the traveler card / payment instrument. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag

toll_payment_pull_in_message

This data flow is used within the Provide Electronic Payment Services function to indicate that a driver must pull in because the toll payment transaction has failed. It contains the following data item which is defined in its own DDE:

vehicle_identity

toll_payment_request

This data flow is used within the Provide Electronic Payment Services function and contains the request for the cost of the current toll to be deducted from the credit currently stored by the traveler card / payment instrument. It is only sent when a value of stored credit has been previously received from the traveler card / payment instrument. The data flow consists of the following data item which is defined in its own DDE:

toll_cost

toll_payment_violator_data

This data flow is used within the Provide Electronic Payment Services function and contains data about a toll transaction that was attempted but did not work. It consists of the data items shown below, each of which is defined in its own DDE. For each particular set of data some of the data items may be blank depending on the reason(s) for which the transaction did not work.

credit_identity
+ vehicle_identity
+ toll_cost

toll_plaza_identity

This data flow is used within the Provide Electronic Payment Services function. It contains the identity of a toll plaza. This is used in the calculation of average journey times between toll plazas. It enables a unique identity to be provided for each toll plaza.

toll_price

This data flow is used within the Provide Electronic Payment Services function and contains the price for each road segment to which a toll can be applied.

toll_price_application_time

This data flow is used within the Provide Electronic Payment Services function and contains the time at which a toll price applies for a particular toll segment.

toll_price_changes_request

This data flow is sent from the Manage Traffic function to the Provide Electronic Payment Services function and contains a request for a change to the current toll pricing structure that will help to influence a change in modal split of journeys currently being undertaken by travelers of all types, i.e. including drivers and users of the transit system. It consists of the following data items each of which is defined in its own DDE:

toll_segments
+ toll_price
+ toll_price_application_time
+ vehicle_type_for_tolls

toll_price_changes_response

This data flow is sent from the Provide Electronic Payment Services function to the Manage Traffic function. It contains the response to a previous request for the current toll prices to be changed to help produce a change in the current modal split of trips being undertaken by all types of travelers.

toll_price_data

This data flow is used within the Provide Electronic Payment Services function. It contains the price for each road segment to which a toll applies, with the time and date for when it applies. The data flow consists of the following data items each of which is defined in its own DDE:

toll_segment_identity
+ toll_price
+ toll_price_application_time

toll_price_data_for_advanced_toll

This data flow within the Provide Electronic Payment Services function contains data on the price for the use of each toll segment by time of day, day of week, special days, and vehicle type for use in advanced toll processing. This data flow consists of the following items each of which is defined in its own DDE:

list_size
+ 1{toll_price
  + toll_price_application_time
  + toll_segment_identity
  + vehicle_type_for_tolls}list_size

toll_price_data_for_vehicle_toll

This data flow within the Provide Electronic Payment Services function contains data on the price for the use of each toll segment by time of day, day of week, special days, and vehicle type for use in the calculation of vehicle tolls. This data flow consists of the following items each of which is defined in its own DDE:

list_size
+ 1{toll_price
  + toll_price_application_time
  + toll_segment_identity
  + vehicle_type_for_tolls}list_size

toll_price_data_request

This data flow is used within the Provide Electronic Payment Services function. It contains a request for the current toll price data to be provided from the store that is being used to calculate toll costs.

toll_price_details

This data flow is sent from the Provide Electronic Payment Services function and contains the price for each road segment to which a toll applies, with the time and date for when it applies. The data flow consists of the following data items each of which is defined in its own DDE:

toll_segments
+ toll_price
+ toll_price_application_time
+ vehicle_type_for_tolls

toll_price_direct_details

This data flow contains the price for each road segment to which a toll applies, with the time and date for when it applies. This data will be used by the Manage Travel Demand facility in its efforts to re-distribute travel demand to the more efficient providers. The data flow consists of the following data items each of which is defined in its own DDE:

toll_segments
+ toll_price
+ toll_price_application_time
+ vehicle_type_for_tolls

toll_price_direct_request

This data flow contains a request for the current prices being charged for toll segments on the road and highway network.

toll_price_for_cvo

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Commercial Vehicles function and contains the price for each road segment to which a toll applies, with the time and date for when it applies. The data flow consists of the following data items each of which is defined in its own DDE:

toll_segments
+ toll_price
+ toll_price_application_time

toll_price_values

This data flow is used within the Provide Electronic Payment Services function. It contains the values of the prices for each road segment to which a toll applies, with the time and date for when it applies. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{toll_price_data}

toll_prices

This data store is used within the Provide Electronic Payment Services function to hold data on the price for the use of each toll segment by time of day, day of week, special days, and vehicle type.

list_size
+ 1{toll_price
  + toll_price_application_time
  + toll_segment_identity
  + vehicle_type_for_tolls}list_size

toll_prices_for_archive

This data flow is used within the Provide Electronic Payment Services function. It contains the price for each road segment to which a toll applies, with the time and date for when it applies. This data is used to maintain a store or archive of pricing data to be forwarded when needed to the Manage Archived Data function. This data flow includes data on the price for the use of each toll segment by time of day, day of week, special days, and vehicle type. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ 1{toll_price

+ toll_price_application_time
+ toll_segment_identity
+ vehicle_type_for_tolls}list_size

toll_prices_for_archive_attributes

This data flow is used to provide meta data included with toll operational data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

toll_prices_for_other_toll

This data includes toll prices to be sent to another toll administration function.

toll_probe_data_for_isp

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function. It contains a collection of the smoothed average vehicle speeds and travel times for a given link or collection of links obtained from the passing times of those vehicles equipped for electronic toll collection. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{route_segment_identity
+ probe_data_from_tolls}

toll_probe_data_for_traffic

This data flow is sent from the Provide Electronic Payment Services function to the Manage Traffic function and contains journey times between toll collection points for those vehicles equipped for electronic toll collection. It is used to calculate link journey times for use in adaptive traffic control techniques and route selection and guidance. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{route_segment_identity
+ route_segment_journey_time_from_tolls}

toll_reconciliation_inputs

This data is collected from another toll administration function to support the reconciliation of toll charges between agencies.

toll_reconciliation_outputs

This data is sent to another toll administration function to support the reconciliation of toll charges between agencies.

toll_route_segments

This data flow contains the identity of toll segments for which toll payment is being provided or requested. It consists of the following data for a specific route. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{toll_segment_identity}

toll_segment_identity

This data flow is used within the Provide Electronic Payment Services function and the Provide Driver and Traveler Services function. It contains the identity number of a toll segment, which may not be the same physical entity as a route segment or a link as used by traffic management processes. The data flow consists of the following item which is defined in its own DDE:

unit_number

toll_segment_users

This data flow contains a calculation of the number of users of a toll segment.

toll_segments

This data flow is used within the Provide Electronic Payment Services function and contains the identity of the toll segment for which toll payment is being provided or requested, or for which toll price data is stored. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{toll_segment_identity}

toll_to_cvo

This data flow is sent from the Provide Electronic Payment Services function to the Manage Commercial Vehicles function. It contains data that provides the results of financial payments for commercial vehicles. The data flow consists of the following item which is defined in its own DDE:

cvo_toll_payments
+ cvo_advanced_toll_payment_information
+ financial_response
+ cv_driver_credit_identity

toll_transaction_records

This data store is used by processes in the Provide Electronic Payment Services function and contains records of the toll transactions. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{advanced_toll_transactions
    + current_toll_transactions}

toll_transactions_for_probe_data

This data flow is used within the Provide Electronic Payment Services function. It contains 'sanitized' toll transaction data from which average journey times between toll plazas can be calculated. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{date
    + time
    + toll_plaza_identity
    + toll_route_segments
    + vehicle_identity}

toll_transactions_for_probe_data_request

This data flow is used within the Provide Electronic Payment Services function. It contains a request for a 'sanitized' set of toll transaction data from which average journey times between toll plazas can be calculated.

toll_vehicle_payment_data

This data flow is used within the Provide Electronic Payment Services function and contains the data that has been provided by the traveler card / payment instrument being used by the driver at a toll plaza. This may be either a credit identity, or the value of the credit currently stored by the traveler card / payment instrument, to which tolls may be charged. The data flow consists of the following items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ toll_segment_identity

toll_vehicle_payment_data_clear

This data flow is used within the Provide Electronic Payment Services function and contains the toll vehicle payment data from which any toll segment identity has been cleared. The data will have been used to charge for use of the toll road, and is being cleared to enable its use for future charging. The data flow consists of the following data item which is defined in its own DDE:

toll_vehicle_payment_data

toll_vehicle_payment_data_collect

This data flow is used within the Provide Electronic Payment Services function and contains the toll vehicle payment data that is being collected from on-board the vehicle. This data will be used as the means by which the vehicle will be charged for its use of the toll road and will consist of the following data item which is defined in its own DDE:

toll_vehicle_payment_data

toll_vehicle_payment_data_request

This data flow is used within the Provide Electronic Payment Services function and contains a request for the toll vehicle payment data to be read from the store that is held on-board the vehicle.

toll_vehicle_payment_data_store

This data store is used within the Provide Electronic Payment Services function and contains the toll vehicle payment data that is being currently used by the vehicle. The toll segment identity portion of this data may show the segment at the entry point to the toll road if that is to be used as the basis for toll charging. The data flow consists of the following data item which is defined in its own DDE:

toll_vehicle_payment_data

toll_vehicle_payment_data_update

This data flow is used within the Provide Electronic Payment Services function and contains the toll vehicle payment data that has been updated. This update will have loaded the identity of the toll segment at which the vehicle entered the toll road and is for use in charging for the vehicle's use of the toll road. The data flow consists of the following data item which is defined in its own DDE:

toll_vehicle_payment_data

toll_vehicle_payment_number

This data flow contains the unique vehicle payment device identification number for tolls.

toll_vehicle_payment_problem_message

This data flow is used to indicate that there was a problem while reading the vehicle payment device - either read was unsuccessful or there was a low balance. The message would provide an indication that the vehicle driver must contact the toll authority (or toll system operator) to resolve the problem.

toll_violation_information

This data is used by the Provide Electronic Payment Services functions to send data about a violator of the toll collection processes to the Manage Emergency Services function. This data will contain a digitized video image of the vehicle trying to violate the toll collection process.

tomcm-env_sensor_data

This data flow provides outputs from a set of environment sensors that are monitored by the maintenance and construction function. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output}

tomcm-m_and_c_plan_feedback

This data flow is used by the Manage Maintenance and Construction function to send feedback regarding proposed work plans to other maintenance and construction facilities whose areas of operation are outside those of the local facility. It contains comments and suggested changes to proposed maintenance and construction work plan schedules and activities. This information will be used to influence the work schedule to minimize impact to other system operations and the transportation system.

tomcm-m_and_c_work_plans

This data flow is used by the Manage Maintenance and Construction function to send data to other maintenance and construction facilities whose areas of operation are outside those of the local facility. It contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations.

tomcm-resource_coordination_data

This data flow represents information about resources that is to be shared between maintenance and construction facilities located in different geographic areas. Included in this data flow are requests for use and availability of those resources.

tomcm-road_weather_info

This data flow contains environmental and road weather information that has been formatted for distribution to other maintenance and constructions organizations. The data may be filtered or aggregated prior to this formatting. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

tomcm-roadway_maint_status

This data flow is used by the Manage Maintenance and Construction function to send data to other maintenance and construction facilities whose areas of operation are outside those of the local facility. It contains information summarizing the current roadway maintenance activities. This also includes maintenance fleet operations affecting the road network such as winter maintenance (snow plow schedules and status). The data flow consists of the following data item which is defined in its own DDE:

current_roadway_maintenance_status

tomcm-work_zone_images

This data flow contains analog or digitized video images of a work zone that are being released for external viewing, in this case to another maintenance and construction management agency. This data flow consists of data from the following data items which are defined in their own DDE:

work_zone_images
+ fomcm-work_zone_images
+ work_zone_intrusion_video_image

tomcm-work_zone_info
This data flow contains a summary of maintenance and construction work zone activities that have been tailored for providing to another maintenance and construction organization. This information includes the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. The data flows also contains work zone resource status. This data flow consists of data from the following data item which is defined in its own DDE:

work_zone_data_for_status

tomcv-crew_movements
This data flow is sent to another maintenance and construction vehicle and contains the location of a maintenance and construction field personnel within a work zone area and some form of personnel identifier that would allow transmitting of a warning to the specific personnel based upon detection of intrusion at a certain point within a work zone. The data flow may also contain an identifier of the sending maintenance and construction vehicle to allow transmission of warnings to be sent back to this specific vehicle.

tomcv-env_conditions
This data flow contains environmental sensor data collected on-board a maintenance and construction vehicle. The data may represent the actual sensor output, or may be a filtered or processed version for display to the operator of another maintenance and construction vehicle. It consists of the following data items each of which is defined in its own DDE:

sensor_identity
+ environment_sensor_output

tomcv-vehicle_operational_data
This data flow is sent to other vehicles from the Manage Maintenance and Construction function and contains information about the maintenance and construction activity performed by the vehicle. Operational data includes the operational state of the maintenance equipment (e.g., blade up/down, spreader pattern) and a record of the actual work performed. It is used to coordinate efforts between maintenance and construction vehicles. It consists of the following data items each of which is defined in its own DDE:

vehicle_id_for_mcv
+ operational_data_for_mcv

tomcv-work_zone_intrusion_alert_on_board
This data flow contains a time stamped indication that a work zone intrusion alert has been generated by a device on-board a maintenance and construction vehicle. The data flow could also identify the form in which the alert was given (e.g. audible warning, visual warning, or in-vehicle warning).

tomcv-work_zone_intrusion_detection_on_board
This data flow contains the time stamped output of an on-board intrusion detection device indicating that an intrusion has been detected. This intrusion detection is sent to another maintenance and construction vehicle.

tomcv-work_zone_intrusion_warning_to_crew
This data flow contains a warning sent by a maintenance and construction vehicle to another maintenance and construction vehicle that an intrusion into the work zone has been detected. The data flow may contain the identity of the sending vehicle, the identity of the receiving vehicle, the location of the intrusion, and the identity of the maintenance and construction field personnel that are at risk due to the location and nature of the intrusion.

topa-toll_charges_reconciliation_data
This data is sent to the Other Payment Administration terminator from the Process Electronic Toll Payment function to support the reconciliation of toll charges between agencies.

topa-toll_pricing_data
This data is sent to the Other Payment Administration terminator from the Process Electronic Toll Payment function to share toll pricing data between separately managed toll agencies.

topa-vmt_coordination_data
This data flow is sent from the Provide Open Road Tolling function to the Other Payment Administration terminator to share road use charging information between separately managed payment administration agencies. This data flow includes Vehicle Miles Traveled (VMT) road use charging policies, specific vehicle travel history in another jurisdiction so that the other agency can charge the user, and funds to be transferred based on travel by a specific vehicle in another jurisdiction that was collected by the other agency.

top-parking_coordination_data
This data flow is sent to the other parking management center by the Manage Parking Lot state function and contains data from the other parking centers about services which have an interface into the area covered by services from the local center.

tors-device_control
This data flow is sent to the Other RS terminator and contains control information for a device (e.g., ramp meter controller). It is

used for coordination between peer indicators or for information transfer between devices functioning in a hierarchical arrangement. In this case, the Other RS terminator represents the indicator to which control commands are being sent. This data flow consists of the following item which is defined in its own DDE:

t_other_rw_fc_control_to_fc

tors-device_status

This data flow is sent to the Other RS terminator and contains status and fault information for an indicator (e.g., ramp meter controller, intersection controller). The data flow can contain the actual state of operation of the indicators. It is used for coordination between peer indicators or for information transfer between devices functioning in a hierarchical arrangement. It may also be used to exchange information between a Signal System Master (SSM) and Signal System Local (SSL) equipment. In this case, the Other RS terminator represents the indicator to which status is being sent. This data flow consists of the following items each of which is defined in its own DDE:

t_other_rw_ic_status_to_ic
+ t_other_rw_fc_status_to_fc

tors-roadway_info_data_from_devices

This data flow is sent to the Other RS terminator and contains data from a device (automated road treatment function, barrier system, or safeguard system) for display on a roadway information device. The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. In this case, the Other RS terminator represents the roadway information device (e.g. dynamic message sign). This data flow consists of the following items each of which is defined in its own DDE:

t_other_rw_dms_auto_treat_data_from_roadway
+ t_other_rw_dms_barrier_activated_from_roadway
+ t_other_rw_dms_safeguard_activated_from_roadway
+ t_other_rw_dms_traffic_metering_data_from_roadway
+ t_other_rw_signage_traffic_metering_data_from_roadway
+ vehicle_emissions_message
+ t_other_rw_dms_roadway_warning_from_roadway
+ t_other_rw_signage_roadway_warning_from_roadway

tors-roadway_info_data_from_sensors

This data flow is sent to the Other RS terminator and contains sensor data from a roadside sensor (such as environmental or individual vehicle speed sensor) for transmission using roadway information devices. The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. In this case, the Other RS terminator represents the roadway information device (e.g., the dynamic message sign). This data flow consists of the following items each of which is defined in its own DDE:

t_other_rw_env_sensor_data_to_dms
+ t_other_rw_individual_vehicle_speed_to_dms
+ t_other_rw_individual_vehicle_speed_to_signage
+ t_other_rw_speed_warning_to_dms
+ t_other_rw_speed_warning_to_signage
+ t_other_rw_variable_speed_limit_data
+ t_other_rw_variable_speed_limit_data_to_signage

tors-sensor_control

This data flow is sent to the Other RS terminator and provides control commands for a roadside sensor (environmental or traffic). In this case, the Other RS terminator represents the sensor to which a roadside or freeway indicator (e.g., intersection controller, ramp meter controller), or an automated road treatment device sends the sensor control commands. This data flow consists of the following items each of which is defined in its own DDE:

t_other_rw_env_sensor_control_by_auto_treat_device
+ t_other_rw_ic_control_to_traffic_sensor
+ t_other_rw_fc_control_to_traffic_sensor

tors-sensor_data

This data flow is sent to the Other RS terminator and provides data from a roadside sensor (environmental, traffic, pedestrian crossing, or work zone intrusion). In this case, the Other RS terminator represents a roadside or freeway indicator (e.g., intersection controller, ramp meter controller), an automated road treatment device, a work zone intrusion alert device, or in-vehicle signage transmitter that receives the sensor data. This data flow consists of the following items each of which is defined in its own DDE:

t_other_rw_env_sensor_data_for_auto_treat_device
+ t_other_rw_pedestrian_sensor_data
+ t_other_rw_road_user_protection_warning
+ t_other_rw_work_zone_intrusion_detection
+ t_other_rw_traffic_sensor_data_to_fc
+ t_other_rw_traffic_sensor_data_to_ic

tors-sensor_status

This data flow is sent to the Other RS terminator and provides data from a roadside traffic sensor. In this case, the Other RS terminator represents a roadside or freeway indicator (e.g., intersection controller, ramp meter controller) that receives the

sensor status. This data flow consists of the following items each of which is defined in its own DDE:

t_other_rw_traffic_sensor_status_to_fc
+ t_other_rw_traffic_sensor_status_to_ic

tors-signal_control
This data flow is sent to another roadside device and contains control information for a traffic signal controller. It can contain the actual data from which instructions to the driver and traveler can be produced by traffic signals in the geographic and/or jurisdictional area(s) served by the other function. It is used for sharing of control between devices functioning in a hierarchical arrangement. It may also be used to exchange information between a Signal System Master (SSM) and Signal System Local (SSL) equipment.

tors-signal_fault
This data flow is sent to the Other RS terminator and contains fault indicators for a traffic signal controller. It is used to support coordination between peer devices or for information transfer between devices functioning in a hierarchical arrangement.

tors-signal_status
This data flow is sent to the Other RS terminator and contains status information for a traffic signal controller. The data flow can contain the actual state of operation of the indicators. It is used for coordination between peer devices or for information transfer between devices functioning in a hierarchical arrangement. It may also be used to exchange information between a Signal System Master (SSM) and Signal System Local (SSL) equipment.

totm-current_event_data
This data flow contains information about events (or incidents) currently active in the region of the TMC. It consists of the following data items each of which is defined in its own DDE:

incident_description
+ incident_location
+ incident_severity
+ incident_traffic_impact
+ incident_type
+ planned_incident_response

totm-device_control_request
This data flow is sent by the Manage Traffic function to traffic centers outside the local jurisdiction, and contains requests for remote control of field equipment belonging to the other center.

totm-device_data
This data flow contains data from field devices managed by the Other TM.

totm-device_inventory
This data flow contains device inventory information from devices managed by the TMC. The device inventory includes the type of device, location, and features of the device.

totm-device_status
This data flow contains status information from devices managed by the TMC. It consists of the following data item which is defined in its own DDE:

device_status_from_traffic

totm-disaster_network_status
This data flow contains information regarding a current non-local disaster. It consists of the following data item which is defined in its own DDE:

disaster_traffic_information_from_other_traffic_management

totm-evacuation_information
This data flow contains information regarding a current non-local evacuation. It consists of the following data item which is defined in its own DDE:

evacuation_traffic_information_from_other_traffic_management

totm-network_status_for_evacuation
This data flow contains information about the status of the road network (what assets are available and what are not) while an evacuation is ongoing.

totm-permit_coordination_for_traffic
This data flow contains information used in the coordination of permits for special travel requirements which involve different agencies and jurisdictions. This information provides the Manage Traffic function with schedule and route information to prepare special travel and traffic controls for the transport of non-typical loads or roadway activities that require permits. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time
+ permit_type

+ permit_route_plan
+ permit_traffic_controls

totm-planned_event_data

This data flow contains information about planned events (or incidents) in the region of the TMC. It consists of the following data item which is defined in its own DDE:

planned_events_data

totm-road_network_inventory_and_status

This data flow comprises data about each segment in the road (surface street) network and highway network and the way in which they fit together, i.e. which segment is joined to which, both upstream and downstream, plus identification of those links that interface from road to highway network. This data element also contains the data for the status of lanes on each link which is stored by the TMC. The lane on the link can either be closed or open. The data flow consists of the following data items each of which is defined in its own DDE:

highway_network
+ road_network
+ link_status

totm-road_weather_data

This data flow contains information about road weather conditions and road conditions obtained from the Traffic Management System. The data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

totm-roadway_detours_and_closures

This data flow contains information about road closures, detours, routes, and control strategies established by another traffic management center that might influence local traffic patterns and demand on facilities.

totm-traffic_control_strategy_for_disaster_or_evacuation

This data flow contains information regarding traffic control strategies that have been put into place in response to disaster or evacuations. It consists of the following data items each of which is defined in its own DDE:

disaster_traffic_control_response_from_other_traffic_management
+ evacuation_control_response_from_other_traffic_management

totm-traffic_data

This data flow contains data showing the current traffic flow conditions on roads (surface streets), freeways and ramps under the jurisdiction of theTraffic Management System. It also includes flows in high occupancy vehicle (hov) lanes from the same area. The data flow consists of the following data items each of which is defined in its own DDE:

processed_traffic_data
+ traffic_flow_state

totm-traffic_image_data

This data flow contains traffic image data from the TMC. It consists of the following data item which is defined in its own DDE:

traffic_video_image_data

totrm-individual_service_request

This data flow contains a request to an Other Transit Management System for a portion of an individual trip they are to provide. This request involves the coordination of connection protection for an individual user.

totrm-transit_fare_data_coordination

This data flow is sent to Other Transit Management centers by the Manage Transit function and contains data for the other transit center about services provided by the local center which have an interface into the area(s) covered by services from the other center. The data flow consists of the following data items each of which is defined in its own DDE:

fare_reconciliation
+ trmc_identity
+ transit_fare_data

totrm-transit_service_data

This data flow is sent to Other Transit Management centers by the Manage Transit function and contains data for the other transit center about services provided by the local center which have an interface into the area(s) covered by services from the other center. The data flow consists of the following data items each of which is defined in its own DDE:

trmc_identity
+ traffic_incident_data_for_transit
+ transit_transfer_cluster_list
+ transit_transfer_point_list
+ transit_vehicle_deviations_details

+ transit_vehicle_passenger_data

totrm-transit_traveler_information

This data flow is sent to Other Transit Management centers by the Manage Transit function and contains data for the other transit center about services provided by the local center which have an interface into the area(s) covered by services from the other center. The data flow consists of the following data items each of which is defined in its own DDE:

transit_services_for_advisory_data
+ transit_vehicle_advisory_eta
+ trmc_identity

tourist_information

This data store is used within the Provide Driver and Traveler Services function to contain data for use by travelers when requesting tourist type information. It consists of the following data items each of which is defined in its own DDE:

travel_services_general_information
+ travel_services_specific_information
+ travel_services_transaction_information
+ fevp-event_information_for_travelers
+ incident_information
+ fws-current_weather_observations
+ fws-weather_forecasts
+ road_conditions
+ road_weather_conditions
+ evacuation_data_for_isp
+ transit_evacuation_data_for_isp
+ roadway_detours_and_closures_for_isp

tov-platoon_data_to_other_vehicle

This data flow is used to send data to other vehicles in a platoon when in platoon following mode of vehicle operation. This includes information about the status of the vehicle, its profile for acceleration and deceleration, and the headway to be used by a vehicle over its entire speed range. This data flow will assist the receiving vehicle in both maintaining the current platoon formation and making changes because (for example) the sending vehicle is leaving the platoon.

tov-safety_msg_data_to_other_vehicles

This data flow is used to broadcast status and safety data to surrounding vehicles. This data may include basic characteristics of the vehicle along with information about the location and direction of the vehicle as well as information about the status of systems on-board the vehicle such as the brakes, steering, throttle, and lighting systems.

tov-safety_status_to_other_vehicle

This data flow is sent from the Provide Vehicle Control and Monitoring function to nearby vehicles. It contains the operational status of the vehicle for including its approaching speed, direction, impending turning movements.

tpa-alert_notification

This data flow from the Process Electronic Payment function to the Payment Administrator terminator contains information about a wide-area alert that has been issued and is to be reviewed by the payment administrator for potentially passing on to the toll operators in the field. This information could include specific criteria for toll operators to be on the look out for as they perform their collection activities.

tpa-archive_status

This data flow is sent to the payment administrator by the Provide Electronic Payment Services function and contains the status received from the Manage Archived Data function. The status may be good (the data was correct and received without error) or bad (errors were either found in the data itself or during the transmission of the data).

tpa-request_advanced_toll

This data flow is sent to the payment administrator by the Provide Electronic Payment Services function and contains an individual request or a summary report of requests to enable a payment of tolls in advance. This flow may includes information on the credit identity and vehicle identity of the requester(s) and the toll segments in question.

tpa-toll_price_changes_request

This data flow is sent from the Provide Electronic Payment Services function to the payment administrator. It contains data requesting a change to the current toll pricing structure so that travelers may be encouraged to change the modal split in their trips.

tpa-transaction_reports

This data flow is sent to the payment administrator by the Provide Electronic Payment Services function. It contains details of the toll transactions that have taken place in the last period. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output.

tpa-vmt_data

This data flow is sent from the Provide Open Road Tolling function to the Payment Administrator and contains details of current road use charges.

tp-cross_request_received

This data flow is sent to pedestrians by the Manage Traffic function and is an indication that a request by a pedestrian to cross the

road or highway has been received and will be responded to in the future. When no requests have been received the indication must be blank or not visible to pedestrians.

tp-cross_road
This data flow is sent to pedestrians by the Manage Traffic function and is an indication that a pedestrian may cross the road or highway (green) or wait until instructed to cross (red).

tp-dms_indication
This data flow is sent to pedestrians by the Manage Traffic function and contains a textual message either warning them of a potential hazard, or providing mandatory instructions as to the availability of pedestrian access, or providing them with information regarding the amount of time remaining to safely cross the street.

tphs-public_health_evacuation_request
Request for specific medical information concerning the nature of biological emergency response to support the management of an evacuation.

tphs-public_health_request
Request for specific medical information concerning the nature of biological emergency response.

tpo-archive_status
This data flow is sent to the parking service provider by the Manage Traffic function and contains the status received from the Manage Archive Data function. The status may be good (the data was correct and received without error) or bad (errors were either found in the data itself or during the transmission of the data).

tpo-change_lot_state
This data flow is sent to a parking lot operator by the Manage Traffic function and is a request for the operator to change the apparent parking lot state. This is the state that is apparent to users and may be closed, open, or in some cases almost full, although this may not be the true state according to its occupancy.

tpo-parking_lot_charge_change_request
This data flow is sent from the Provide Electronic Payment Services function to the parking operator. It contains data requesting a change to the current parking lot charging structure.

tpo-parking_lot_status
This data flow contains either static or dynamic information on a set of parking lots. This data flow is made up of the following data items each of which is defined in its own DDE:

list_size{parking_lot_identity
+ parking_lot_static_data_for_coordination
+ dynamic_parking_information_for_coordination}

tpo-request_advanced_parking_payment
This data flow is used by the Provide Electronic Payment Services function to send a request to the parking operator to enable a particular advanced parking lot payment and includes information on the payee's credit identity, the vehicle identity and the location of the required parking lot space.

tpo-transaction_reports
This data flow is sent to the parking operator from the Provide Electronic Payment Services function and contains the output of the log of toll transaction reports.

track_status
This data flow represents the current status of the wayside equipment interface and the processes within the Manage HRI Rail Traffic process. It is used to determine the overall health and status of the HRI by the Monitor HRI Status process. This data flow is made up of the following data items each of which is defined in its own DDE:

wayside_status
+ hri_rail_alert

traffic_alert
This data flow contains traveler alerts that report regionally relevant traffic congestion, road work, or road closures and may average speeds, level of congestion, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions including the traveler's location, search radius, drive route, or timeframe, as well as configurable alert thresholds (e.g., level of congestion, average speed).

traffic_archive_catalog
This data flow is used to provide the description of the data contained in the collection of traffic data that has been stored and made available for the Manage Archived Data function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g. time range of entries, number of entries; or sample data products.

traffic_archive_data
This data flow from Manage Traffic to Manage Archived Data contains the archive data stored in the Manage Traffic function along with the meta data describing the data as collected from field equipment. This data flow is made up of traffic surveillance data, parking operational data, emissions data, and roadside data. This data flow also includes operational status data from the data collection and monitoring equipment. This may also include requests for a data product from the archive to be used to

support the operation of the traffic management function. This data flow is made up of the following items each of which is defined in its own DDE:

traffic_management_archive_data
+ parking_archive_data
+ emissions_archive_data
+ roadside_archive_data
+ data_collection_device_status
+ traffic_archive_data_product_request

traffic_archive_data_product
This data flow from the Manage Archived Data function to the Manage Traffic function contains the data, meta-data, or catalog data in response to an operational systems request. This data may include formatting done within the Manage Archived Data function or may be raw data from the archive that will be formatted by the operational systems.

traffic_archive_data_product_request
This data flow from the Manage Traffic function contains the request for data or a catalog of data managed by the Manage Archived Data function.

traffic_archive_input
This data flow from the Manage Archived Data function to the Manage Traffic function contains the request for the catalog of data and the data itself. This flow also contains a report of status from the archive function. It also includes control for the data collection and monitoring equipment. This flow may include data in response to a request for an archive data product to support the operation of the traffic management function. This data flow consists of the following data items each of which is defined in its own DDE:

traffic_archive_request
+ traffic_archive_status
+ data_collection_device_control
+ traffic_archive_data_product

traffic_archive_request
This data flow from Manage Archived Data to Manage Traffic contains the requests from the archive function for data stored in the Manage Traffic function. This data flow includes requests for traffic surveillance data, parking data, emissions data, and roadside data. This data flow is made up of the following items each of which is defined in its own DDE:

traffic_management_archive_request
+ parking_archive_request
+ emissions_archive_request
+ roadside_archive_control

traffic_archive_status
This data flow from Manage Archived Data to Manage Traffic contains the status from the archive function for the data sent to the Manage Traffic function. This data flow includes status for the traffic surveillance data, parking data, and emissions data. This data flow is made up of the following items each of which is defined in its own DDE:

traffic_management_archive_status
+ parking_archive_status
+ emissions_archive_status

traffic_control_request
This data flow contains a request for traffic management center to implement a control strategy on the transportation network. The control strategy could be used to support an emergency response or recovery effort.

traffic_control_response
This data flow contains a response from a traffic management center regarding a control strategy that has been implemented on the transportation network. The control strategy could be used to support an emergency response or recovery effort.

traffic_control_strategy_alterations
This data flow is used within the Manage Traffic function and contains the traffic control actions necessary to minimize the impact of an incident.

traffic_data_archive
This data store is used within the Manage Traffic function to hold data that is to be archived by the Manage Archived Data function. This data includes information, such as, traffic deployment data and automatic vehicle operational data. The data store contains the following data items each of which is defined in its own DDE:

traffic_archive_catalog
+ traffic_data_for_deployment
+ traffic_deployment_data_attributes
+ static_data_for_archive
+ static_data_attributes
+ avo_operational_data
+ avo_operational_data_attributes

+ traffic_management_event_log
+ traffic_management_event_log_attributes

traffic_data_demand_request

This data flow is used within the Manage Traffic function to provide the Manage Demand facility with current, historic and predictive traffic data. It consists of the following data items each of which is defined in its own DDE:

tmc_identity
+ traffic_data_request

traffic_data_deployment_request

This data flow is sent from the Manage Archive Data function to request the Manage Traffic function to provide it with traffic data. It must contain a processor source identity so that the Manage Traffic function knows where to send the retrieved traffic

traffic_data_flow

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveler Services function. It contains traffic data (including parking lot information) either to be provided direct to travelers or for use by the route guidance and route selection processes, or for archival. The data flow consists of the following data items each of which is defined in its own DDE:

current_roadway_network_state
+ current_traffic_pollution_data
+ dynamic_parking_information_for_isp
+ link_data_for_guidance
+ parking_to_vehicle_local_parking_data
+ planned_events
+ prediction_data
+ roadway_detours_and_closures_for_isp
+ static_parking_information_for_isp
+ traffic_data_for_isp
+ traffic_video_for_isp
+ traffic_data_for_ridesharing
+ traffic_incident_data_for_isp
+ vehicle_env_probe_data_output
+ vehicle_probe_data_and_status_for_isp
+ traffic_road_weather_data_for_isp
+ vehicle_signage_data
+ vehicle_signage_emissions_testing_results
+ reversible_lane_signal_states

traffic_data_for_advisory_output

This data flow is used to provide data on the traffic flowing in the road network, plus that which is predicted to flow in the network and consists the following items each of which is defined in its own DDE:

source_identity
+ current_data_for_retrieval
+ long_term_data_for_retrieval
+ predictive_data_for_retrieval

traffic_data_for_alerts

This data flow contains traveler alerts that report regionally relevant traffic congestion, road work, or road closures and may include average speeds, level of congestion, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions.

traffic_data_for_archive

This data flow is sent from the Manage Traffic to the Manage Archived Data function. It is used to provide detailed data on the traffic flowing in the road network. This data flow consists the following items each of which is defined in its own DDE:

traffic_data_for_deployment
+ traffic_deployment_data_attributes
+ static_data_for_archive
+ static_data_attributes
+ avo_operational_data
+ avo_operational_data_attributes
+ traffic_management_event_log
+ traffic_management_event_log_attributes

traffic_data_for_broadcast

This data flow is sent to the broadcast portion of the Provide Traveler Information Services facility within the Provide Driver and Traveler Services function. It is used to provide data on the traffic flowing in the road network, plus that which is predicted to flow in the network and consists of the following items each of which is defined in its own DDE:

traffic_data_for_isp
+ current_traffic_pollution_data
+ asset_restrictions_for_info_provider

+ other_isp_traffic_data
+ m_and_c_work_plans_for_info_provider
+ roadway_detours_and_closures_for_isp
+ current_highway_network_state
+ current_road_network_state
+ roadway_maint_status_for_info_provider
+ work_zone_info_for_isp
+ traffic_probe_data_from_vehicles
+ reversible_lane_signal_state_for_roads
+ reversible_lane_signal_state_for_freeways

traffic_data_for_centers

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data on the traffic flowing in the road network, plus that which is predicted to flow in the network, for transmission to other operational centers. It consists of the following items each of which is defined in its own DDE:

traffic_data_for_isp
+ current_traffic_pollution_data
+ asset_restrictions_for_info_provider
+ other_isp_traffic_data
+ m_and_c_work_plans_for_info_provider
+ vehicle_toll_probe_data
+ roadway_detours_and_closures_for_isp
+ current_highway_network_state
+ current_road_network_state
+ roadway_maint_status_for_info_provider
+ work_zone_info_for_isp
+ traffic_probe_data_from_vehicles
+ reversible_lane_signal_state_for_roads
+ reversible_lane_signal_state_for_freeways

traffic_data_for_cvo

This data flow contains traffic information to be transmitted to commercial vehicle fleet operations centers, including traffic and road conditions, detours and closures, and other related information. This data flow consists of the following item which is defined in its own DDE:

traffic_data_for_centers

traffic_data_for_demand

This data flow is used within the Manage Traffic function to send data from the Display and Output Traffic Data facility to the Manage Demand facility. It is used to provide data on the traffic flowing in the road network, plus that which is predicted to flow in the network and consists the following items each of which is defined in its own DDE:

tmc_identity
+ long_term_data_for_output
+ predictive_model_data
+ traffic_archive_data_product

traffic_data_for_deployment

This data flow is sent from the Manage Traffic function to the Manage Archived Data function. It is used to provide data on the traffic flowing in the road network, plus that which is predicted to flow in the network and consists the following items each of which is defined in its own DDE:

long_term_data_for_output
+ predictive_model_data
+ current_data_for_output

traffic_data_for_dre

This data flow is used to communicate the general status of the transportation system as seen by traffic management during a disaster or evacuation. The data flow consists of the following data items each of which are defined in their own DDE:

network_status_from_traffic_for_disaster
+ network_status_from_traffic_for_evacuation
+ safeguard_system_activation_request_from_operator

traffic_data_for_em_response

This data flow is sent from the Manage Traffic function to the Manage Emergency Services function and contains current traffic information, roadway environmental conditions, and roadway network data to better respond to emergencies. It consists of the following items each of which is defined in it own DDE:

roadway_environment_conditions
+ link_state_data
+ emergency_traffic_control_response
+ network_and_device_inventory

traffic_data_for_emergency_services

This data flow is used within the Manage Traffic function and contains current traffic information, roadway environmental conditions, and roadway network data for the emergency management system. It consists of the following items each of which is defined in it own DDE:

roadway_environment_conditions
+ link_state_data
+ emergency_traffic_control_response
+ network_and_device_inventory

traffic_data_for_interactive

This data flow is sent to the Provide Traveler Information Services facility within the Provide Driver and Traveler Services function. It is used to provide data, processed for traveler consumption, on the traffic flowing in the road network, plus that which is predicted to flow in the network and consists of the following items each of which is defined in its own DDE:

traffic_data_for_isp
+ current_traffic_pollution_data
+ asset_restrictions_for_info_provider
+ other_isp_traffic_data
+ m_and_c_work_plans_for_info_provider
+ roadway_detours_and_closures_for_isp
+ current_highway_network_state
+ current_road_network_state
+ roadway_maint_status_for_info_provider
+ work_zone_info_for_isp
+ traffic_probe_data_from_vehicles
+ reversible_lane_signal_state_for_roads
+ reversible_lane_signal_state_for_freeways

traffic_data_for_isp

This data flow contains sensor data, and current, long term, and predictive traffic information that is provided to other ITS functions for use in providing traveler services. The data flow consists of the following data items each of which is defined in its own DDE:

current_traffic_data_for_retrieval
+ long_term_traffic_data_for_retrieval
+ predictive_traffic_data_for_retrieval
+ sensor_output_data_for_isp
+ dms_data_for_isp
+ reversible_lane_restriction_data
+ hov_lane_restriction_data
+ network_and_device_inventory

traffic_data_for_ridesharing

This data flow is sent to the Ridesharing facility within the Provide Driver and Traveler Services function. It is used to provide data on the traffic flowing in the road network, plus that which is predicted to flow in the network and consists of the following item which is defined in its own DDE:

traffic_data_for_isp

traffic_data_for_route_guidance

This data flow is sent to the Provide Guidance and Routing Services facility within the Provide Driver and Traveler Services function. It is used to provide data on the traffic flowing in the road network, plus that which is predicted to flow in the network and consists of the following items each of which is defined in its own DDE:

traffic_data_for_isp
+ asset_restrictions_for_info_provider
+ foisp-traffic_data
+ m_and_c_work_plans_for_info_provider
+ roadway_detours_and_closures_for_isp
+ prediction_data
+ current_highway_network_state
+ current_road_network_state
+ link_data_for_guidance
+ planned_events
+ roadway_maint_status_for_info_provider
+ route_restrictions_for_isp
+ work_zone_info_for_isp
+ traffic_probe_data_from_vehicles
+ reversible_lane_signal_state_for_roads
+ reversible_lane_signal_state_for_freeways

traffic_data_for_signage

This data flow is used within the Manage Traffic function. It contains traffic flow, occupancy, speed and other data some of which can be used as part of the data that is broadcast by roadside processes for use by in-vehicle signage equipment. The data flow consists of the following data items each of which is defined in its own DDE:

link_state_data

traffic_data_for_strategy

This data flow is used within the Manage Traffic function to support the Select Strategy facility. It is used to provide data on the traffic flowing in the road network, archived traffic data products, and that which is predicted to flow in the network and consists the following items each of which is defined in its own DDE:

tmc_identity
+ long_term_data_for_output
+ predictive_model_data
+ traffic_archive_data_product

traffic_data_for_transit

This data flow contains information about environmental conditions, traffic flow state, air quality data, and roadway network data. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{roadway_environment_conditions
+ traffic_flow_state
+ link_state_data
+ area_air_quality_index}
+ network_and_device_inventory

traffic_data_for_trip_planning

This data flow is sent to the Provide Trip Planning facility within the Provide Driver and Traveler Services function. It is used to provide data on the traffic flowing in the road network, plus that which is predicted to flow in the network and consists of the following item which is defined in its own DDE:

traffic_data_for_isp
+ reversible_lane_signal_state_for_roads
+ reversible_lane_signal_state_for_freeways

traffic_data_for_vehicle_sensors

This data flow provides local traffic conditions information to roadside sensors. This data may be include speed, volume data of traffic, pedestrians, other lane usage data to assist cooperative vehicle safety systems.

traffic_data_media_parameters

This data flow is used within the Manage Traffic function and contains parameters used to define the actual data elements that are required for each request for output data by the media. This data flow is the result of input of new parameters and/or updates to the current set of parameters by the traffic operations personnel.

traffic_data_request

This data flow is used by several ITS functions to request the Manage Traffic function to provide current, long term and predictive traffic data. It will be accompanied by other data flows to provide the origin and hence the return destination for the retrieved traffic data.

traffic_data_request_for_alerts

This data flow is used to request specific traffic congestion, road work, or road closure information based on traveler alert subscriptions.

traffic_data_request_from_interactive

This data flow is used within the Provide Driver and Traveler Services function to request traffic data for the interactive traveler information application. It must contain a processor source identity to indicate where to send the retrieved traffic data. It consists of the following item which is defined in its own DDE:

traffic_data_request

traffic_data_request_from_ridesharing

This data flow is used by the Ridesharing facility within the Provide Driver and Traveler Services function to request traffic data. It must contain a processor source identity to indicate where to send the retrieved traffic data. It consists of the following item which is defined in its own DDE:

traffic_data_request

traffic_data_request_from_route_guidance

This data flow is used within the Provide Driver and Traveler Services function to request traffic data for use in the route guidance application. It must contain a processor source identity to indicate where to send the retrieved traffic data. It consists of the following item which is defined in its own DDE:

traffic_data_request

traffic_data_request_from_trip_planning

This data flow is used by the Provide Trip Planning facility within the Provide Driver and Traveler Services function to request traffic data. It must contain a processor source identity to indicate where to send the retrieved traffic data. It consists of the following item which is defined in its own DDE:

traffic_data_request

traffic_data_retrieval_parameters

This data store is used within the Manage Traffic function and contains parameters used to define the actual data elements that are required for each request for output data by the media. The data in this store is set up by the traffic operations personnel.

traffic_deployment_data_attributes

This data flow is used to provide meta data included with traffic deployment operational data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

traffic_detour_control_for_other_traffic

This data flow contains request from traffic management for other traffic management centers to provide control measures that will support detour routes assigned. The request could be for a long term or short term control. It might also include a request to remove vehicle restrictions such as HOV on facilities.

traffic_detour_control_from_other_traffic

This data flow contains request from other traffic management to provide control measures that will support detour routes established by the other traffic management center. The request could be for a long term or short term control. It might also include a request to remove vehicle restrictions such as HOV on facilities.

traffic_detour_data_from_other_traffic

This data flow is used to coordinate traffic detours, routes and restrictions with other traffic management. It contains the detour and route information sent form other traffic management. The data flow consists of the following data items which are defined in their own DDE:

traffic_detour_control_from_other_traffic
+ traffic_detour_info_from_other_traffic

traffic_detour_data_to_other_traffic

This data flow is used to coordinate traffic detours, routes and restrictions with other traffic management. It contains the detour and route information sent to other traffic management. The data flow consists of the following data items which are defined in their own DDE:

traffic_detour_control_for_other_traffic
+ traffic_detour_info_for_other_traffic

traffic_detour_info_for_other_traffic

This data flow contains information about detours, routes, and control strategies established by traffic management center that might influence traffic patterns and demand on facilities in another center.

traffic_detour_info_from_other_traffic
This data flow contains information about detours, routes, and control strategies established by another traffic management center that might influence local traffic patterns and demand on facilities.

traffic_device_control
This data flow controls the state of traditional traffic control devices at a local HRI.

traffic_device_control_state
This data flow contains the state of standard traffic control devices at a grade crossing.

traffic_device_status_to_roadway_m_and_c
This DFD flow represents the data flows from Provide Device Control to Manage Roadway M&C Activities and includes roadway equipment status from a traffic center and DMS status from an automated treatment device. It consists of the following items each of which is defined in its own DDE:

device_status_to_roadway_m_and_c
+ dms_auto_treat_status_to_maint
+ field_equipment_status_from_traffic
+ f_other_rw_env_sensor_data_for_auto_treat_device

traffic_disaster_response_plan
This data flow contains the resources that are available from traffic management that may be used for the current disaster. The data flow consists of the following data items which are defined in their own DDE:

disaster_response_traffic_available_resources

traffic_emergency_status_report
This flow contains the status of traffic management in supporting an emergency event. The data flow consists of the following data items which are defined in their own DDE:

resource_deployment_status

traffic_evacuation_plan
This data flow contains the resources that are available from traffic management to be used for an evacuation. This set may be modified from the resources that were identified in the preplanning stages. The data flow consists of the following data item which is defined in its own DDE:

evacuation_traffic_available_resources

traffic_evacuation_resource_request
This flow contains a request for traffic in supporting an evacuation. It provides a set of requested resources that evacuation management has been told are available for use. The data flow consists of the following data item which is defined in its own DDE:

traffic_evacuation_plan

traffic_evacuation_status
This data flow contains a status of traffic operations response to an evacuation. It includes information regarding response to requests for traffic resources, etc. In general it provides information regarding how well the system is responding to the evacuation, and may be used to improve on the current evacuation plan.

traffic_field_equipment_fault_data
This data store is used within the Manage Traffic function and contains details of the operational status (state of the device, configuration, and fault data) of all field equipment. Field equipment includes sensors (traffic, infrastructure, environmental, security, speed, etc.) and devices (highway advisory radio, dynamic message signs, automated roadway treatment systems, barrier and safeguard systems, cameras, traffic signals and override equipment, ramp meters, traffic probe field equipment, security surveillance equipment, lighting systems, etc.). It consists of the following data items each of which is defined in its own DDE:

list_size{barrier_system_device_status
+ safeguard_system_device_status
+ indicator_status_from_traffic_meters
+ indicator_status_from_signals
+ dms_status
+ har_status
+ vehicle_sign_status
+ avo_device_status
+ reversible_lane_control_device_status_from_highways
+ reversible_lane_control_device_status_from_roads
+ video_device_status
+ vehicle_traffic_probe_equip_status
+ hri_status
+ environmental_sensor_status
+ hov_sensor_status
+ multimodal_crossing_sensor_status
+ pedestrian_sensor_status

+ reversible_lane_sensor_status
+ speed_sensor_status
+ traffic_sensor_status
+ lighting_system_device_status
+ shoulder_management_device_status
+ lane_management_device_status
+ roadway_warning_device_status
+ road_user_protection_device_status}

traffic_flow_state

This data flow is used within the Manage Traffic function. It contains data showing the current traffic flow conditions on roads (surface streets), freeways and ramps served by the function. It also includes flows in high occupancy vehicle (hov) lanes from the same area. The data is a subset of that in the current and historical data stores and is used as a means of 'packaging' the data for distribution to users such as ISP's. The data flow consists of the following data items each of which is defined in its own DDE:

ramp_signal_state
+ current_roadway_network_data
+ current_road_network_use
+ hov_lane_data
+ link_data_from_tags
+ link_data_from_avl

traffic_image_data

This data flow contains the data produced by processing image data obtained from visual detection systems. This data is therefore that which can be obtained from systems such as traffic surveillance closed circuit television (cctv). It is analyzed and used to detect traffic conditions such as flow, occupancy, possible incidents, etc. This data flow consists of the following items each of which is defined in its own DDE:

incident_analysis_data
+ incident_video_image

traffic_impact_criteria

This data contains the criteria for calculating the impact an incident will have on traffic flows.

traffic_incident_data_for_isp

This data flow contains current and long term traffic incident information as well as roadway network data that is provided to other ITS functions for use in providing traveler services. The data flow consists of the following data items each of which is defined in its own DDE:

current_traffic_incident_data_for_retrieval
+ long_term_traffic_incident_data_for_retrieval
+ network_and_device_inventory

traffic_incident_data_for_transit

This data flow is used within the Manage Transit function and contains data about current incidents received from the Manage Traffic function. The data flow consists of the following data items each of which is defined in its own DDE:

current_incident_details

traffic_m_and_c_data

This DFD flow represents the data flows from Manage Traffic to Manage Maintenance and Construction. The DFD flow consists of the following data flows each of which are defined in its own DDE:

env_sensor_data_for_traffic_speed_monitoring
+ environment_sensor_data_for_maint
+ infrastructure_sensor_data_for_mcv
+ infrastructure_sensor_status_for_mcv
+ road_network_info_from_traffic
+ traffic_video_for_mcm
+ incident_info_from_traffic
+ traffic_device_status_to_roadway_m_and_c
+ roadside_device_control_to_work_zone
+ incident_data_for_work_zone
+ surveillance_data_for_env
+ video_device_status_for_m_and_c
+ sensor_status_to_roadway_m_and_c
+ vehicle_probe_equip_status_for_m_and_c
+ hri_equip_status_for_m_and_c
+ sensor_vehicle_speed_data
+ traffic_resource_to_m_and_c
+ traffic_resource_to_m_and_c
+ f_other_rw_work_zone_intrusion_detection
+ f_other_rw_variable_speed_limit_data
+ roadway_detours_and_closures_for_m_and_c

+ disaster_network_status_from_traffic_to_m_and_c
+ speed_sensor_control_from_traffic_personnel
+ variable_speed_limit_control_from_traffic_personnel
+ vehicle_env_probe_data_and_status_for_maint
+ vehicle_env_probe_data_for_infrastructure_maint
+ planned_events_for_maint
+ lane_status_for_m_and_c

traffic_management_archive_catalog_request

This data flow from the Manage Archived Data function to the Manage Traffic function contains the request for a catalog of the data held by the Manage Traffic function. The request for a catalog may include either or both the description of the types of data the archive is interested in or a timeframe over which the requested information may be available.

traffic_management_archive_data

This data flow is sent from the Manage Traffic function to the Manage Archive Data function. It is used to provide data on the traffic flowing in the road network, which includes current, predicted, and historical data. It also provides data on video images and operational data. The data flow consists the following items each of which is defined in its own DDE:

traffic_archive_catalog
+ traffic_data_for_archive

traffic_management_archive_data_request

This data flow from the Manage Archived Data function contains the request for the data held by the Manage Traffic function. The request for data may include either or both the description of the data required or a timeframe over which the requested information may be available.

traffic_management_archive_request

This data flow from the Manage Archived Data function contains the request for data collected and stored by the Manage Traffic function. The request can be a request for a catalog of the data held by the function or a request for the data itself. This data flow consists of the following data items each of which is defined in its own DDE:

traffic_management_archive_catalog_request
+ traffic_management_archive_data_request

traffic_management_archive_status

This data flow is sent from the Manage Archived Data function to the Manage Traffic function. It is the status returned when traffic archive data is sent from the Manage Traffic function to the Manage Archived Data function.

traffic_management_event_log

This data flow contains the event log for traffic management operations, such as recordings of the deployments of barriers or safeguard systems, and is for use by the Manage Archived Data function. The data flow consists of the following data item which is defined in its own DDE:

barrier_system_data_for_archive
+ safeguard_system_data_for_archive

traffic_management_event_log_attributes

This data flow is used to provide meta data included with traffic management event logs for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size

+ standard_data_attribute
+ standard_message_attribute

traffic_management_request
This data flow is used by hri to request services or data from other traffic management functions.

traffic_management_storage_data
This data flow is used within the Manage Traffic function. It contains the indicator control, signal timing plans, and response states plus the selected traffic control strategy(ies) for the road (surface street) and highway network served by the function. The data is a subset of that in the current and historical data stores. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_control_storage_data
+ indicator_input_storage_data
+ selected_strategy

traffic_metering_data_for_signage
This data flow from the Process Traffic Data function contains information to be distributed to drivers approaching a traffic meter (e.g., ramp meter), such as advance warning of the meter, its operational status (whether it is currently on or not, how many cars per green are allowed, etc.), lane usage at the meter (including a bypass lane for HOVs) and existing queue at the meter. This can be used to inform travelers about conditions in the area using in-vehicle signage functions.

traffic_metering_info
This data flow indicates the status of the traffic metering system, lane usage assignment indicators, how many cars per green, existing queue at the meter, etc.

traffic_model_data_for_incident_calcs
This data flow contains the output of the predictive model process and shows predictions of traffic data for route segments on the road and highway network.

traffic_operations_resource_request
This data flow is used within the Manage Traffic function as a request from the operations personnel for information on details of incident resources, such as equipment and support for incident response and clean up.

traffic_operations_resource_response
This data flow is used within the Manage Traffic function and provides the status of resource request information.

traffic_operator_to_processing
This DFD flow represents the data flows from Display and Output Traffic Data to Process and Store Traffic Data. It consists of the following items each of which is defined in its own DDE:

env_sensor_control_by_traffic_operator
+ hov_lane_restriction_data_for_enforcement
+ dynamic_lane_mgmt_control_from_operator

traffic_performance_measures
This data flow is used within the Manage Traffic function and contains data showing the current traffic flow conditions on roads (surface streets), freeways and ramps served by the function. It also includes flows in high occupancy vehicle (hov) lanes from the same area. The data flow consists of the following data items each of which is defined in its own DDE:

link_state_data
+ traffic_flow_state

traffic_preplanned_disaster_response_plan
This data flow contains the preplanned disaster response and recovery plan for traffic management. These plans contain assets, signal timing plans, etc. that traffic management has planned to utilize prior to the occurrence of a disaster. The data flow consists of the following data item which is defined in its own DDE:

planned_disaster_response_traffic_available_resources

traffic_preplanned_evacuation_plan
This data flow contains a description of the preplanned support of traffic management to an evacuation. These plans contain assets, signal timing plans, etc. that traffic management has planned to utilize to support an evacuation. The data flow consists of the following data item which is defined in its own DDE:

planned_evacuation_traffic_available_resources

traffic_probe_aggregated_data_attributes
This data flow is used within the Provide Driver and Traveler Services function to provide data attribute information to the data archive about aggregated vehicle traffic probe data. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions

+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

traffic_probe_aggregated_data_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about the aggregated route segment usage and travel times, and other aggregated data collected from probe vehicles that can be used to estimate current traffic conditions. Sources of probe data include toll collection points, guided vehicles, vehicle traffic probes, and transit vehicle tracking. The data flow consists of the following items each of which is defined in its own DDE:

vehicle_traffic_probe_data_aggregation

traffic_probe_configuration

This data flow provides vehicles that are part of a centralized ISP Services Data Collection function with configuration information concerning how they are to provide their traffic probe data. It includes the start and end times for the data reporting, where the vehicle should report its probe data, and under what conditions probe data provision may be skipped (e.g. if the probe data is unchanged by a given threshold).

traffic_probe_data_archive_catalog

This data flow is used to provide the description of the data contained in the collection of traffic probe data that has been stored and made available for the Manage Archived Data function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g. time range of entries, number of entries; or sample data products.

traffic_probe_data_for_archive

This data flow is sent from the Manage Traffic to the Manage Archived Data function. It is used to provide detailed vehicle traffic probe data. For each vehicle, the data includes unique vehicle identifiers, the vehicle's speed, heading and snapshots of recent events including starts and stops, speed changes, and other information that can be used to estimate traffic conditions. This data flow consists the following items each of which is defined in its own DDE:

list_size
+ station_id
+ list_size{vehicle_traffic_probe_data
+ vehicle_guidance_probe_data}
+ vehicle_traffic_probe_data_attributes

traffic_probe_data_from_vehicle

This data flow provides outputs from equipment onboard a vehicle used to determine traffic conditions, including a unique vehicle identifier, the vehicle's speed, and heading and snapshots of recent events including starts and stops, speed changes, and other information that can be used to estimate traffic conditions. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity +
time +
list_size +
list_size{sensor_identity
+ vehicle_traffic_sensor_output}

traffic_probe_data_from_vehicles

This data flow is used within the Provide Driver and Traveler Services function and contains the aggregated route segment usage and travel times collected from ITS-equipped personal vehicles, electronic toll collection operations, and tracking transit vehicles. The data flow consists of the following items each of which is defined in its own DDE:

vehicle_traffic_probe_data_aggregation

traffic_probe_data_from_vehicles_archive_data

This data flow is sent from the Manage Traffic function to the Manage Archive Data function. It contains a catalog and details of vehicle traffic probe data collected at the roadside. For each vehicle, the data includes unique vehicle identifiers, the vehicle's

speed, heading and snapshots of recent events including starts and stops, speed changes, and other information that can be used to estimate traffic conditions. Along with the data is a set of meta-data or attributes describing the data being archived. This data flow contains the following data items each of which is defined in its own DDE:

traffic_probe_data_archive_catalog
+ traffic_probe_data_for_archive

traffic_probe_info_from_isp_for_traffic

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Traffic function and contains aggregated route segment usage and travel times, and other aggregated data collected from probe vehicles that can be used to estimate current traffic conditions. Sources of probe data include toll collection points, guided vehicles, vehicle traffic probes, and transit vehicle tracking. The data flow consists of the following item which is defined in its own DDE:

vehicle_traffic_probe_data_aggregation

traffic_resource_request

This data flow is used within both the Manage Traffic and Manage Emergency Services to request traffic management resources to include temporary signs, cones, and other assists that can be used to divert traffic, create detours, and otherwise manage traffic at the incident scene. It also includes requests for any other assists that may be needed to support incident clearance.

traffic_resource_to_m_and_c

This DFD flow represents the data flows from Manage Incidents to Manage Roadway M&C Activities and includes resource coordination information. It consists of the following items each of which are defined in its own DDE:

video_device_equip_status_for_m_and_c
+ m_and_c_plan_feedback_from_traffic
+ m_and_c_resource_request_from_traffic
+ roadway_maint_action_req_from_traffic
+ winter_maint_action_req_from_traffic

traffic_resources_available

This data flow contains a listing of the vehicles and operators that transit has available for use. The data flow consists of the following data items which are defined in their own DDE:

resource_deployment_status

traffic_resources_for_disaster

This data flow contains a listing of resources available for use from traffic management for use during a disaster response and recovery procedure. The data flow consists of the following data items which are defined in their own DDE:

traffic_resources_available

traffic_resources_for_evacuation

This data flow contains a listing of resources available for use from traffic management for use during an evacuation. The data flow consists of the following data items which are defined in their own DDE:

traffic_resources_available

traffic_road_weather_data_for_isp

This data flow contains sensor data and current weather and roadway environment information that is provided to other ITS functions for use in providing traveler services. The data flow consists of the following data items each of which is defined in its own DDE:

current_road_weather_from_traffic
+ roadway_environment_conditions
+ environment_sensor_data

traffic_sensor_data

This data flow is used within the Manage Traffic function and contains the data obtained from processing the inputs from sensors around the road network. It consists of the following data items each of which is defined in its own DDE:

list_size
+ 1{station_id
+ sensor_identity
+ traffic_sensor_output}list_size

traffic_sensor_data_archive_input

This data flow is used within the Manage Traffic function to collect sensor data from the roadside to send to the data archive function. The data consists of HOV, pedestrian, traffic, multimodal crossing, reversible lane, and local sensor data for roads and highways. It consists of the following data items each of which is defined in its own DDE:

hov_sensor_data
+ pedestrian_sensor_data
+ local_sensor_data_for_highways
+ local_sensor_data_for_roads

+ traffic_sensor_data
+ reversible_lane_sensor_data
+ multimodal_crossing_sensor_data

traffic_sensor_data_attributes

This data flow is used to provide meta data included with sensor data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

traffic_sensor_data_for_automated_lane_changing

This data flow contains traffic sensor data that is used to determine the operation of the automated lane changing function. The sensor data includes volume, occupancy, speed, headways, vehicle characteristics, and merging distance. It consists of the following data items each of which is defined in its own DDE:

traffic_sensor_data

traffic_sensor_data_for_variable_speed_limits

This data flow is used within the Manage Traffic function and contains speed data obtained from processing the inputs from sensors around the road network. It consists of the following data items each of which is defined in its own DDE:

list_size
+ 1{station_id
+ sensor_identity
+ traffic_sensor_output}list_size

traffic_sensor_equip_status_for_m_and_c

This data flow provides the operational status (state of the sensor device, configuration, and fault data) of a traffic sensor to the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

traffic_sensor_output

This data flow is the output of a single sensor. The output is either raw or aggregated data calculated over a period of time from that sensor.

traffic_sensor_output_data

This data flow is used within the Manage Traffic function and contains information obtained from data analyzed by traffic sensors. It is sent to the process traffic data store for current and long term data. This data flow consists of the following items each of which is defined in its own DDE:

traffic_sensor_data
+ traffic_video_image
+ pedestrian_sensor_data
+ hri_sensor_data

traffic_sensor_status

This data flow provides the operational status (state of the device, configuration, and fault data) of traffic sensor equipment for the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ sensor_device_status

traffic_sensor_status_for_archive_manager

This data flow is used to collect operational status (state of the device, configuration, and fault data) of sensors from the roadside. It consists of the following data item which is defined in its own DDE:

list_size{station_id
+ sensor_identity
+ sensor_device_status}

traffic_surveillance_data

This data flow represents highway traffic management surveillance information that is relevant to local ITS railroad grade crossing traffic management (e.g. stalled vehicles within crossings, crossing signal malfunctions, unusual traffic, detected incidents, etc.).

traffic_traveler_data

This data flow includes the contents of a store of traffic information received from a number of sources for use in traveler information and service applications. This data consists of the following items each of which is defined in its own DDE:

current_traffic_pollution_data
+ asset_restrictions_for_info_provider
+ m_and_c_work_plans_for_info_provider
+ roadway_maint_status_for_info_provider
+ work_zone_info_for_isp
+ work_zone_images_for_isp
+ route_restrictions_for_isp
+ roadway_detours_and_closures_for_isp
+ planned_events
+ prediction_data
+ current_road_network_state
+ current_highway_network_state
+ foisp-traffic_data
+ link_data_for_guidance
+ traffic_data_for_isp
+ traffic_probe_data_from_vehicles
+ reversible_lane_signal_state_for_roads
+ reversible_lane_signal_state_for_freeways

traffic_traveler_data_collected_for_personnel

This data flow is used within the Provide Driver and Traveler Services function and contains information for use by personnel about the traffic information collected. The data flow consists of the following data item which is defined in its own DDE:

traffic_traveler_data

traffic_traveler_data_collection_parameters

This data contains parameters to be used to govern traffic traveler data collection to support traveler services (trip planning, broadcast data, etc.).

traffic_video_camera_number

This data flow is used within the Manage Traffic function. It contains the identity of a high resolution video camera used for traffic surveillance. The data flow consists of the following items each of which is defined in its own DDE:

unit_number
+ location_identity

traffic_video_for_isp

This data flow contains traffic image data sent to the ISP. It consists of the following data item which is defined in its own DDE:

traffic_video_image_data

traffic_video_for_mcm

This data flow contains traffic image data sent to the Manage Maintenance and Construction function. It consists of the following data item which is defined in its own DDE:

traffic_video_image_data

traffic_video_for_transit

This data flow contains traffic image data sent to the Manage Transit function. It consists of the following data item which is

defined in its own DDE:

traffic_video_image_data

traffic_video_image
This data flow is used within the Manage Traffic function and contains a video image of sufficient fidelity to support operator monitoring applications. This image can be a by-product of a machine vision application or the end-product of a system dedicated to traffic surveillance.

traffic_video_image_data
This data flow is used within the Manage Traffic function. It contains the video image which is used by a roadside device to measure traffic flow measures. The data flow consists of the following items each of which is defined in its own DDE:

list_size
+ list_size{traffic_video_camera_number
    + traffic_video_image}

traffic_video_image_for_display
This data flow contains the video image which is used by a roadside device to measure traffic flow measures. The data flow consists of the following item which is defined in its own DDE:

traffic_video_image

train_alert
This data flow represents a binary indication that a train is either approaching or a train is not approaching the HRI. This is the minimum flow component from wayside equipment to the HRI process for an active crossing.

train_direction
A data element that may be used to indicate train direction or status (stopped, moving, direction etc.). For a more compact representation of train dynamics, direction and alert data elements could be combined.

train_dynamics
This is a set of parameters associated with a specific train. These parameters are sufficient that a process can determine the arrival time of a train at an HRI and determine how long the HRI will be occupied by that train. The data element content definition below is a worst case assumption and would allow an HRI to adjust its closure strategy based on a train's ability or inability to react. A simpler definition would provide only closure time-of-day and duration.

train_speed
+ arrival_time
+ location_identity
+ train_length
+ train_stopping_distance

train_id
A unique identification number assigned to each train and used to identify which of several trains approaching an HRI is being referenced.

train_length
This data element represents train length in feet.

train_message
This data flow contains alert or advisory data about an HRI operational status to be passed to a train as it approaches an HRI. It is generated by the Manage HRI Traffic process for use by the Manage HRI Rail Traffic process.

train_ops_plan
This data flow contains data from traffic management to be used to coordinate overall operations with the hri closures.

train_sense_data
This data flow is used within the Manage Traffic function. It contains train data acquired from wayside equipment and allows traffic management to control or monitor roadside equipment in conjunction with HRI conditions. The data flow consists of the following data items each of which is defined in its own DDE:

crossing_id
+ hri_sensor_data

train_speed
This data element represents train speed as an integer.

train_stopping_distance
This is a data element that represents the computed (emergency) stopping distance, in feet, of an approaching train. This would probably be based on a train on-board computer, the trains manifest and motive power and the current track conditions.

transaction_number
This data is used by ITS functions as the identifier for a particular financial transaction involving a traveler usually with the

Information and Service Providers, Brokers, Financial Institutions, etc.

transfer_charges_to_fares
This data flow is used within the Provide Electronic Payment Services function. It is sent from the parking lot charge payment facility to the fare payment facility and contains the following items of data each of which is defined in its own DDE:

advanced_fare_details
+ advanced_charges_confirm

transfer_charges_to_tolls
This data flow is used within the Provide Electronic Payment Services function. It is sent from the parking lot charge payment facility to the toll payment facility and contains the following data items each of which is define in its own DDE:

advanced_tolls
+ advanced_charges_confirm

transfer_fares_to_charges
This data flow is used within the Provide Electronic Payment Services function. It is sent from the transit fare payment facility to the parking lot charge payment facility and contains the following data items each of which is defined in its own DDE:

advanced_charges
+ advanced_fares_confirm

transfer_fares_to_tolls
This data flow is used within the Provide Electronic Payment Services function. It is sent from the fare payment facility to the toll payment facility and contains the following data items each of which is define in its own DDE:

advanced_tolls
+ advanced_fares_confirm

transfer_tolls_to_charges
This data flow is used within the Provide Electronic Payment Services function. It is sent from the toll payment facility to the parking lot charge payment facility an contains the following items of data each of which is defined in its own DDE:

advanced_charges
+ advanced_tolls_confirm

transfer_tolls_to_fares
This data flow is used within the Provide Electronic Payment Services function. It is sent from the toll payment facility to the transit fare payment facility and contains the following data items each of which is defined in its own DDE:

advanced_fare_details
+ advanced_tolls_confirm

transit_advisory_vehicle_information
This data flow is used within the Manage Transit function from data received from the Provide Driver and Traveler Information function. The data flow contains information about other services requested by a traveler on-board a transit vehicle. These other services will be for what are called 'yellow pages' services, e.g., hotels, restaurants, theaters, etc.

transit_alert
This data flow contains traveler alerts that report regionally relevant transit service delays or service disruptions and may include bus stop closures, schedule delays, transit incidents, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions including the traveler's location, search radius, bus route, bus stop, or timeframe, as well as configurable alert thresholds (e.g., schedule delay).

transit_archive_catalog
This data flow is used to provide the description of the data contained in the collection of transit data that has been stored and made available for the Manage Archive function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g., time range of entries, number of entries; or simple data product.

transit_archive_catalog_request
This data flow from the Manage Archived Data function to the Manage Transit function contains the request for a catalog of the data held by the Manage Transit function. The request for a catalog may include either or both the description of the types of data the archive is interested in or a time frame over which the requested information may be available.

transit_archive_data
This data flow from Manage Transit to Manage Archive Data contains the archive data stored in the Manage Transit function along with the meta data describing the data as collected from field equipment. This data can include a catalog of the data held by the function. This data flow is made up of transit passenger operational data, transit deployment data, traveler payment data, transit emergency data, transit security data, maintenance and personnel data. This data flow is made up of the following items each of which is defined in its own DDE:

transit_archive_catalog
+ transit_data_for_archive

transit_archive_data_product
This data flow from the Manage Archived Data function to the Manage Transit function contains the data, meta-data, or catalog data in response to an operational systems request. This data may include formatting done within the Manage Archived Data function or may be raw data from the archive that will be formatted by the operational systems.

transit_archive_data_product_request
This data flow from the Manage Transit function contains the request for data or a catalog of data managed by the Manage Archived Data function.

transit_archive_data_request
This data flow from the Manage Archive Data function to the Manage Transit function contains the request for the data held by the Manage Transit function. The request for data may include the description of the data required or a time frame over which the requested information may be available.

transit_archive_input
This data flow from the Manage Archived Data function to the Manage Transit function contains the request for the catalog of data and the data itself. This flow also contains a report of status from the archive function. This flow may include data in response to a request for an archive data product to support the operation of the transit management function. This data flow consists of the following data items each of which is defined in its own DDE:

transit_archive_request
+ transit_archive_status
+ transit_archive_data_product

transit_archive_request
This data flow from the Manage Archived Data function contains the request for data collected and stored by the Manage Transit function. The request can be a request for a catalog of the data held by the function or a request for the data itself. This data flow consists of the following data items each of which is defined in its own DDE:

transit_archive_catalog_request
+ transit_archive_data_request

transit_archive_status
This data flow is sent from the Manage Archived Data function to the Manage Transit function. It is the status returned when transit archive data is sent from the Manage Transit function to the Manage Archived Data function.

transit_changes_in_speed
This data flow is used within the Manage Transit function and contains corrections to the desired average speed for each segment in the current regular transit route. This speed value is that which the transit vehicle operator must achieve between successive transit stops in order to be compliant with the revised transit schedule. These corrections are intended to enable the transit vehicles on a particular route to return to their scheduled service for that route.

transit_changes_in_stops
This data flow is used within the Manage Transit function and contains corrections to the stops on the current regular transit route. These corrections may be to delete stops because the route has also been changed (see separate data flow), or to add stops so that travelers can use such things as alternative mode transfer facilities. The corrections are intended to enable the transit vehicles on a particular route to return to their scheduled service for that route.

transit_conditions_demand_request
This data flow is sent from the Provide Driver and Traveler Services function to the Manage Traffic function. It is used to request details of the current state of transit vehicle operations for use in demand forecasting calculations carried out by the Manage Demand facility.

transit_confirmation_flag
This data flow is used within the Manage Transit function to indicate that a paratransit service is to be used or not.

transit_coordination_data
This data flow is sent from the Manage Transit function to the Manage Emergency Services function. It is used to provide data on the way in which the response to a transit incident should be coordinated. The data flow consists of the following data items each of which is defined in its own DDE:

transit_coordination_information
+ transit_fleet_operation_acknowledge
+ transit_response_to_incident

transit_coordination_information
This data flow is used within the Manage Transit function and contains incident response coordination information for use by processes in that function.

transit_data
This data flow is sent from the Manage Transit function to the Provide Driver and Traveler Services function and contains information that is being provided in response to requests from drivers or travelers. It consists of the following data items each of which is defined in its own DDE:

paratransit_personal_schedule
+ transit_incident_data
+ transit_services_for_guidance
+ transit_vehicle_arrival_time
+ transit_transfer_point_list
+ transit_evacuation_data_for_isp
+ transit_vehicle_deviations_details
+ transit_services_for_isp
+ transit_services_for_personal_devices
+ transit_probe_data_for_isp
+ transit_vehicle_status_for_signing
+ personal_parking_facility_information
+ individual_transit_trip_plan
+ transit_trip_plan_for_kiosks
+ transit_trip_plan_for_user

transit_data_archive

This data store is used within the Manage Transit function to hold data that is to be archived by the Manage Archived Data function. This data includes information, such as, passenger operational data, transit routes and schedule data, transit fares, maintenance and personnel data, transit multimodal information, and statistics and metrics data. The data store contains the following data items each of which is defined in its own DDE:

transit_archive_catalog
+ transit_operational_data_for_archive
+ transit_services_for_deployment
+ traveler_payments_transactions
+ transit_fare_transactions
+ transit_route_assign_for_archive
+ bad_transit_collected_fare_payment
+ bad_transit_roadside_fare_payment
+ bad_transit_vehicle_fare_payment
+ transit_vehicle_operator_info_for_archive
+ transit_incident_info_for_archive
+ transit_emergency_data_for_archive
+ transit_technician_info
+ transit_vehicle_maintenance_info
+ paratransit_service_data_for_archive
+ transit_vehicle_data_for_archive
+ transit_operational_data_attributes

transit_data_for_alerts

This data flow contains traveler alerts that report regionally relevant transit service delays or service disruptions and may include bus stop closures, schedule delays, transit incidents, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions.

transit_data_for_archive

This data flow is sent from the Manage Transit function to the Manage Archived Data function. It is used to provide details of transit operational data for release to the data archive. This data flow is made up of the following items each of which is defined in its own DDE:

transit_operational_data_for_archive
+ transit_services_for_deployment
+ traveler_payments_transactions
+ transit_fare_transactions
+ transit_route_assign_for_archive
+ bad_transit_collected_fare_payment
+ bad_transit_roadside_fare_payment
+ bad_transit_vehicle_fare_payment
+ transit_vehicle_operator_info_for_archive
+ transit_incident_info_for_archive
+ transit_emergency_data_for_archive
+ transit_technician_info
+ transit_vehicle_maintenance_info
+ paratransit_service_data_for_archive
+ transit_vehicle_data_for_archive
+ transit_operational_data_attributes

transit_data_for_broadcast

This data flow within the Provide Driver and Traveler Services function contains transit related information that is being provided to the broadcast traveler information application. It consists of the following data items each of which is defined in its own DDE:

other_isp_transit_data
+ transit_vehicle_deviations_details

+ transit_services_for_isp
+ transit_transfer_point_list
+ transit_incident_data
+ transit_fare_data_for_isp

transit_data_for_centers

This data flow is within the Provide Driver and Traveler Services function. It contains transit related information for transmission to other operational centers. It consists of the following data items each of which is defined in its own DDE:

other_isp_transit_data
+ transit_vehicle_deviations_details
+ transit_services_for_isp
+ transit_transfer_point_list
+ transit_incident_data
+ transit_fare_data_for_isp

transit_data_for_interactive

This data flow within the Provide Driver and Traveler Services function contains transit related information, processed for traveler consumption, that is being provided in response to requests from the interactive traveler information application. It consists of the following data items each of which is defined in its own DDE:

other_isp_transit_data
+ transit_vehicle_deviations_details
+ transit_services_for_isp
+ transit_transfer_point_list
+ transit_incident_data
+ transit_fare_data_for_isp

transit_data_for_route_selection

This data flow within the Provide Driver and Traveler Services function contains transit related information that is being provided in response to requests from the route selection application. It consists of the following data items each of which is defined in its own DDE:

foisp-transit_data
+ transit_vehicle_deviations_details
+ transit_services_for_isp
+ transit_transfer_point_list
+ transit_incident_data
+ transit_fare_data_for_isp

transit_data_for_trip_planning

This data flow within the Provide Driver and Traveler Services function contains transit related information that is being provided in response to requests from the trip planning application. It consists of the following data items each of which is defined in its own DDE:

transit_traveler_data

transit_data_request

This data flow is used within the Provide Driver and Traveler Services function. It contains a request for data about transit services. The request may specify the origin and destination of the transit service and other parameters. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_services_request
+ origin
+ destination
+ desired_departure_time
+ desired_arrival_time

transit_data_request_for_alerts

This data flow is used to request specific transit service delays or service disruption information based on traveler alert subscriptions.

transit_data_request_from_interactive

This data flow is used within the Provide Driver and Traveler Services function. It contains a request for data about transit services for use in interactive traveler information applications. The data flow consists of the following item which is defined in its own DDE:

transit_data_request

transit_data_request_from_route_selection

This data flow is used within the Provide Driver and Traveler Services function. It contains a request for data about transit services for use in route selection applications. The data flow consists of the following item which is defined in its own DDE:

transit_data_request

transit_data_request_from_trip_planning

This data flow is used within the Provide Driver and Traveler Services function. It contains a request for data about transit services that are available for use as part of a traveler's trip plan. The data flow consists of the following item which is defined in its own DDE:

transit_data_request

transit_disaster_response_plan

This data flow contains the resources, schedules, routes, etc. that are available from transit management that may be used for the current disaster. The data flow consists of the following data items which are defined in their own DDE:

disaster_response_transit_available_resources
+ disaster_response_transit_schedule
+ disaster_response_transit_routes
+ disaster_response_transit_fares

transit_emergency

This data flow is sent from the Manage Transit function to the Manage Emergency Services function and contains data about incidents within the transit network and fare payment violators. It consists of the following data items each of which is defined in its own DDE:

transit_coordination_data
+ transit_emergency_data
+ transit_incident_details
+ fare_collection_roadside_violation_information
+ fare_collection_vehicle_violation_information
+ alert_notification_status_from_transit
+ remote_transit_vehicle_security
+ disaster_and_evacuation_info_from_transit
+ transit_info_for_emergency_services
+ transit_system_status
+ response_for_emergency_transit_support
+ transit_schedule_information_during_emergencies

transit_emergency_coordination_data

This data flow is sent from the Manage Emergency Services function to the Manage Transit function. It contains the following data items which are defined in their own DDE:

transit_incident_coordination_data
+ emergency_data_for_transit
+ wide_area_alert_notification_for_transit
+ traveler_information_restrictions_for_transit
+ deactivate_traveler_information_restrictions_for_transit
+ disaster_and_evacuation_info_to_transit
+ request_for_emergency_transit_support
+ request_transit_operator_authentication
+ transit_vehicle_operator_authentication_status
+ secure_transit_vehicle_alarm_request_for_transit
+ transit_vehicle_disable_acknowledge
+ threat_and_infrastructure_info_for_transit
+ bad_transit_fare_payment_data
+ incident_response_status_to_transit

transit_emergency_data

This data flow is sent from the Manage Transit function to the Manage Emergency Services function and contains details of an emergency on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

incident_location
+ incident_start_time
+ incident_duration
+ incident_severity

transit_emergency_data_for_archive

This data flow is used within the Manage Transit function and contains details of an emergency on-board a transit vehicle to be stored for later use. It consists of the following data items each of which is defined in its own DDE:

transit_emergency_data
+ transit_media_emergency_interface_parameters
+ transit_vehicle_disable_from_operator
+ secure_transit_vehicle_alarm_request_for_transit

transit_emergency_response_plan_from_personnel

This data flow is used by personnel in the Emergency Operations Center to coordinate disaster response and recovery plans with transit. It contains the response from transit system operator personnel regarding the modified response and recovery plan and

evacuation plan.

transit_emergency_response_plan_to_personnel

This data flow is used within the Manage Transit function to present the data for the coordination of response plans between the Transit function and the Emergency Management function for disasters and evacuations. This data flow is used to coordinate disaster response and recovery plans with transit. It contains information regarding the nature of the disaster, and the preplanned response and recovery plan for transit as well as evacuation planning. Given this information, transit can provide a plan that it will use that is appropriate for the given disaster.

transit_emergency_status_report

This flow contains the status of transit operations in supporting an emergency event.

transit_evacuation_data_for_isp

This data flow contains the schedules, routes, etc. that will be used by transit during an evacuation. The information is intended for distribution to travelers. The data flow consists of the following data items which are defined in their own DDE:

evacuation_transit_schedule
+ evacuation_transit_routes
+ evacuation_transit_fares

transit_evacuation_plan

This data flow contains the resources that are available from transit management to be used for an evacuation. This set may be modified from the resources that were identified in the preplanning stages. The data flow consists of the following data items which are defined in their own DDE:

evacuation_transit_available_resources
+ evacuation_transit_schedule
+ evacuation_transit_routes
+ evacuation_transit_fares

transit_evacuation_resource_request

This flow contains a request for transit in supporting an evacuation. It provides a set of requested resources, schedules, routes, etc. that evacuation management has been told are available for use. The data flow consists of the following data item which is defined in its own DDE:

transit_evacuation_plan

transit_evacuation_status

This data flow contains a status of transit response to an evacuation. It includes information regarding response to requests for transit resources, schedule assignments, etc. In general it provides information regarding how well the transit system is responding to the evacuation, and may be used to improve on the current evacuation plan.

transit_fare

This data flow is used within the Manage Transit function and contains the actual cost for the traveler to travel over a route in the transit network, i.e. the cost of going from a particular origin on a transit route to a particular destination on (possibly another) transit route.

transit_fare_collection_data

This data item is used within the Manage Transit function. It contains data about the transit services that have been used and the fares that have been collected for their use. The data flow consists of the following data items each of which is defined in its own DDE:

transit_fare
+ transit_route_use_time
+ traveler_category
+ traveler_journey_end
+ traveler_journey_start

transit_fare_data

This data flow is used within the Provide Electronic Payment Services function and contains details of the fares being currently charged for transit services. It consists of the following items each of which is defined in its own DDE:

list_size{transit_fares}

transit_fare_data_for_isp

This data flow contains details of the fares currently being charged for transit services. It consists of the following item which is defined in its own DDE:

list_size{transit_fares}

transit_fare_data_request

This data flow is used within the Provide Electronic Payment Services function. It contains a request for the current transit fare price data to be provided from the store that is being used to calculate transit fares.

transit_fare_details

This data flow is sent from the Provide Electronic Payment Services function and contains details of the fares being currently charged for transit services. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_route_number
    + transit_route_segment_list
    + traveler_category
    + transit_route_use_time}

transit_fare_direct_details

This data flow contains details of the fares being currently charged for transit services. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_route_number
    + transit_route_segment_list
    + traveler_category
    + transit_route_use_time}

transit_fare_direct_request

This data flow contains a request for the current prices being charged for transit fares.

transit_fare_transaction_records

This data store is used by processes in the Provide Electronic Payment Services function and contains records of transit fare payment transactions. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{advanced_fare_transactions
    + current_fare_transactions}

transit_fare_transactions

This data flow is used by processes in the Manage Transit function and contains records of transit fare payment transactions. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{advanced_fare_transactions
    + current_fare_transactions}

transit_fares

This data item is used within the Manage Transit function. It contains the current fare for each segment of a transit route in the network. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_route_segment_list
+ traveler_category
+ transit_route_use_time

transit_fares_for_advanced_payments

This data store is used within the Provide Electronic Payments Services function and contains details of the current regular transit fares for use in calculating advanced fare payments. It consists of the following data item which is defined in its own DDE:

transit_fare_data

transit_fares_for_roadside

This data store is used within the Manage Transit function and contains the current transit fares for use in fare processing on-board the transit vehicle. It consists of the following data item which is defined in its own DDE:

transit_fares

transit_fares_for_vehicle

This data item is used within the Manage Transit function and contains the current transit fares for use in fare processing on-board the transit vehicle, obtained from the data store of transit fares. It consists of the following data item which is defined in its own DDE:

transit_fares

transit_fares_for_vehicle_store

This data store is used within the Manage Transit function and contains the current transit fares for use in fare processing on-board the transit vehicle. It consists of the following data item which is defined in its own DDE:

transit_fares

transit_fleet_operation_acknowledge

This data flow is used within the Manage Transit function and contains the acknowledgment of the request for the transit system operator to take specified actions in response to an incident.

transit_fleet_operation_request

This data flow is used within the Manage Transit function and contains a request for the transit system operator to take specified actions in response to an incident.

transit_highway_overall_priority

This data flow contains requests and information about the overall priority which should be given to one or more transit vehicles at all points in the freeway network served by the function, as opposed to priority requests from individual vehicles at specific locations. This priority will apply at an individual junction, or along a selected transit route if that is specified.

transit_highway_priority_given

This data flow is sent from the Manage Traffic function to the Manage Transit function. It contains confirmation that the requested priority has been given to transit vehicles throughout the freeway network served by the function. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag

transit_incident_coordination_data

This data flow is sent from the Manage Emergency Services function to the Manage Transit function and contains information needed to deal with a transit related incident. It contains the following data items each of which is defined in its own DDE:

transit_coordination_information
+ transit_fleet_operation_request
+ transit_response_to_incident

transit_incident_data

This data flow contains information about an incident that has occurred within part of the transit operations network, e.g. transit stop or mode interchange point. The location and details of the incident will be included in the information, subject to any constraints applied by the transit agency on providing information to outside sources.

transit_incident_details

This data flow is sent from the Manage Transit function to the Manage Emergency Services function and contains details of an incident in the transit operations network. It consists of the following data items each of which is defined in its own DDE:

incident_location
+ incident_start_time
+ incident_duration
+ incident_severity
+ transit_vehicle_off_route_indication

transit_incident_extra_data

This data flow is used within the Manage Transit function and contains details from the transit system operator of any additional data relevant to a transit incident.

transit_incident_info_for_archive

This data flow is used within the Manage Transit function and contains information about an incident in the transit operations network to be stored for later use. It consists of the following data items each of which is defined in its own DDE:

disaster_response_plan_coordination_to_transit
+ emergency_data_for_transit
+ evacuation_plan_coordination_to_transit
+ infrastructure_integrity_status_for_transit
+ threat_info_for_transit
+ transit_incident_details
+ transit_media_incident_interface_parameters
+ transit_operator_security_action
+ transit_preplanned_responses_for_archive

transit_incident_information

This data flow is used within the Manage Transit function and contains information about an incident in the transit operations network. It consists of the following data items each of which is defined in its own DDE:

incident_location
+ incident_start_time
+ incident_duration
+ incident_severity
+ transit_vehicle_off_route_indication

transit_incident_location

This data flow is used within the Manage Transit function and contains the location of an incident that has occurred in the transit operations network. The location will be something other than a transit vehicle and so will be at a fixed point. The data flow

consists of the following data item which is defined in its own DDE:

location_identity

transit_incident_required_action
This data flow is used within the Manage Transit function and contains details of the action(s) required concerning the security problem previously identified to the transit system operator. The action(s) is(are) to be taken by the receiving process.

transit_info_for_emergency_services
This data flow contains a set of information provided by the Operate Transit Vehicles and Facilities function for the Provide Emergency Service Allocation function. The data flow consists of the following data items which are defined in their own DDE:

transit_vehicle_operator_authentication
+ transit_vehicle_operator_authentication_database_update
+ secure_transit_vehicle_location
+ secure_sensors_transit_vehicle_location
+ secure_surveillance_transit_vehicle_location

transit_information_request
This data flow is used within the Manage Transit function and requests details of the current state of transit vehicle operations.

transit_inputs
This data flow is sent from the Manage Transit function to the Manage Traffic function and contains information about the operation of transit vehicles, requests for priority at signalized intersections and the response to requests for changes in transit services that have been made to help redistribute traveler demand. It consists of the following data items each of which is defined in its own DDE:

transit_roadway_overall_priority
+ transit_vehicle_roadway_priorities
+ transit_ramp_overall_priority
+ transit_services_for_demand
+ transit_services_changes_response
+ transit_running_data_for_demand
+ transit_probe_data_for_traffic
+ parking_lot_static_information_request_by_transit
+ parking_lot_dynamic_information_request_by_transit

transit_journey_date
This data flow is used within the Provide Electronic Payment Services and Manage Transit functions. It gives the date and time at which a transit journey is to be made by a traveler (including a user of the transit system) and is used for trip planning purposes only. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time

transit_maint_info_for_planning
This data flow is used within the Manage Transit function. It contains information about vehicle maintenance and technician data, vehicle availability, and vehicle inventory for use by processes within the planning and scheduling facility. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_maintenance_info
+ transit_technician_info
+ transit_vehicle_availability
+ transit_vehicle_inventory_for_assignment

transit_management_archive_data
This flow from Manage Transit to Manage Archived Data includes the data from transit management to be archived along with any requests for archive data products from the transit management systems operator. This consists of the following items each of which is defined in its own DDE:

transit_archive_data
+ transit_archive_data_product_request

transit_media_emergency_interface_parameters
This data flow is used within the Manage Transit function and contains parameters used to define the content and form of data that is automatically output to the media following an emergency in the transit operations network. It covers incidents to both travelers and vehicles and is principally concerned with emergencies that have taken place on-board transit vehicles. The data in the flow is set up by the transit system operator and enables some control to be exercised of the information being output, e.g. the suppression of some details where such things as acts of terrorism may be involved.

transit_media_incident_interface_parameters
This data flow is used within the Manage Transit function and contains parameters used to define the content and form of data that is automatically output to the media following an incident in any part of the transit facilities. It covers incidents to travelers, and may have taken place at a transit stop or in some other transit operating facility. The data in the flow is set up by the transit system operator and enables some control to be exercised of the information being output, e.g. the suppression of some details

where such things as acts of terrorism may be involved.

transit_media_interface_parameters

This data flow is used within the Manage Transit function and contains parameters used to define the content and form of data that is automatically output to the media following an incident or emergency in the transit operations network. The data flow consists of the following data items each of which is defined in its own DDE:

transit_media_emergency_interface_parameters
+ transit_media_incident_interface_parameters

transit_mode_routes

This store is used within the Provide Driver and Traveler Services function and is used to store details of all transit routes which are currently in use by travelers.

transit_operational_data

This data store is used within the Manage Transit function and contains operational data which can be used to generate transit routes and schedules. It consists of the following data items each of which is defined in its own DDE:

list_size{date + time
+ transit_roadside_operational_data
+ transit_vehicle_operational_data
+ transit_vehicle_assignment_data + transit_passenger_operational_data}

transit_operational_data_attributes

This data flow is sent from the Manage Transit function to the Manage Archived Data function. It is used to provide the meta data included with transit operational data for release to the data archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

transit_operational_data_for_archive

This data flow is used by processes within the Manage Transit function and contains data about operations of the fleet operated by the function. This data is stored for later use. The data flow consists of the following items each of which is defined in its own DDE:

transit_operational_data

transit_operational_data_for_routes

This data flow is used within the Manage Transit function to provide operational data which can be used to generate transit routes. It consists of the following data items each of which is defined in its own DDE:

list_size{date
+ time
+ transit_roadside_operational_data
+ transit_vehicle_operational_data
+ transit_passenger_operational_data}

transit_operational_data_for_schedules

This data flow is used within the Manage Transit function to provide operational data which can be used to generate transit schedules. It consists of the following data items each of which is defined in its own DDE:

list_size{date
+ time
+ transit_roadside_operational_data
+ transit_vehicle_operational_data
+ transit_vehicle_assignment_data
+ transit_passenger_operational_data}

transit_operations_to_fares

This flow sends data from the Operate Transit Vehicles and Facilities function to the Collect Transit Fares in the Vehicle function. It consists of the following items each of which is defined in its own DDE:

transit_vehicle_location_for_fares
+ transit_advisory_vehicle_information
+ individual_transit_user_trip_plan

transit_operations_to_planning_and_scheduling

This flow carries data from the Operate Transit Vehicles and Facilities function to the Plan and Schedule Transit Services function. It consists of the following items each of which is described in its own DDE:

paratransit_vehicle_location
+ traffic_incident_data_for_transit
+ transit_services_for_eta_request
+ transit_vehicle_data
+ transit_vehicle_data_for_archive
+ transit_vehicle_reassignment_request
+ connection_change_request
+ connection_change_request_for_other_transit

transit_operator_emergency_request

This data flow is used within the Manage Transit function and contains information about an incident that has been detected on-board a transit vehicle or at a transit facility following input from a traveler or transit vehicle operator. The data is for output to the transit system operator so that responsive action can be initiated.

transit_operator_incident_information

This data flow is used within the Manage Transit function and contains information about an incident that has been automatically detected within the transit operations area. This incident may be a potential security problem, but it is up to the transit system operator to decide what responsive action can be initiated. The data flow consists of the following data items each of which is defined in its own DDE:

transit_incident_location
+ traveler_incident_input
+ infrastructure_integrity_status_for_transit
+ transit_vehicle_off_route_indication

transit_operator_request_acknowledge

This data flow is used within the Manage Transit function and contains an acknowledgment that the previous notification of an emergency to the transit system operator has been received and is being considered for action.

transit_operator_security_action

This data flow is used within the Manage Transit function and contains details of security action(s) that the transit system operator has requested having been presented with details of an incident within the transit operations network. The data flow consists of the following data items each of which is defined in its own DDE:

transit_incident_required_action
+ transit_incident_extra_data

transit_passenger_capacities

This data flow is used within the Manage Transit function and provides the capacity of each transit vehicle as a number of passengers.

transit_passenger_operational_data

This data flow contains information about the number of passengers (travelers in the transit system) who have used transit stops and vehicles being operated by the Manage Transit function. There are therefore two sets of data, one showing the numbers of passengers using each transit stop and the other showing the number of passengers on-board transit vehicles on each route segment. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{date + time
    + transit_roadside_operational_data
    + transit_route_operational_data}

transit_payment_data

This data flow is sent from the Manage Transit function to the Provide Electronic Payment Services function and contains data used in payment transactions. It consists of the following data items each of which is defined in its own DDE:

advanced_tolls_and_charges_roadside_request
+ advanced_tolls_and_charges_vehicle_request
+ bad_tag_list_request
+ other_services_roadside_request
+ other_services_vehicle_request
+ request_roadside_fare_payment
+ request_vehicle_fare_payment
+ transit_services_for_advanced_fares
+ traveler_advanced_payment_at_roadside
+ traveler_roadside_image
+ traveler_vehicle_image

transit_payment_results

This data flow is sent from the Provide Electronic Payment Services function to the Manage Transit function and contains the results of payment transactions. It consists of the following data items each of which is defined in its own DDE:

advanced_tolls_and_charges_roadside_confirm
+ advanced_tolls_and_charges_vehicle_confirm
+ bad_tag_list_update
+ confirm_roadside_fare_payment
+ confirm_vehicle_fare_payment
+ other_services_roadside_response
+ other_services_vehicle_response
+ request_traveler_roadside_image
+ request_traveler_vehicle_image
+ transit_roadside_fare_data
+ transit_vehicle_fare_data
+ traveler_roadside_credit_identity_for_transit
+ traveler_roadside_tag_data
+ traveler_vehicle_tag_data

transit_payment_transactions_for_archive

This data flow is sent from the Provide Electronic Payment Services function to the Manage Transit function and contains records of transit fare and traveler payment transactions. It consists of the following data items each of which is defined in its own DDE:

traveler_payments_transactions
+ transit_fare_transactions

transit_planning_data_for_operations

This data flow provides a set of planning and scheduling information to the Operate Transit Vehicles and Facilities function within Manage Tranit. This flow consists of the following items each of which is defined in its own DDE:

transit_services_for_corrections
+ transit_services_for_eta
+ transit_services_for_scenarios
+ traveler_transit_information
+ traveler_transit_information_for_transit_advisories
+ transit_vehicle_assignment_for_operations
+ transit_vehicle_assignment_for_vehicle
+ current_connection_status
+ current_connection_status_from_other_transit
+ vehicle_correction_actions

transit_plans

This data store is used within the Manage Transit function to hold data about both regular and paratransit services. This data is used as input to the regular transit schedule generation processes, as it provides details of the current services and the most popular paratransit services. The data store contains the following data items each of which is defined in its own DDE:

paratransit_service_stored_data
+ transit_routes
+ transit_schedules

transit_plans_for_assignment

This data flow is used within the Manage Transit function to provide data about both regular and paratransit services. This data is used as input to the regular transit schedule generation processes. This item contains the following data items each of which is defined in its own DDE:

paratransit_service_stored_data
+ transit_routes
+ transit_schedules

transit_preplanned_disaster_response_plan

This data flow contains the preplanned disaster response and recovery plan for transit management. These plans contain transit

assets, schedules, etc. that have been planned to utilize prior to the occurrence of a disaster. The data flow consists of the following data items which are defined in their own DDE:

planned_disaster_response_transit_available_resources
+ planned_disaster_response_transit_schedule
+ planned_disaster_response_transit_routes
+ planned_disaster_response_transit_fares

transit_preplanned_evacuation_plan

This data flow contains a description of the preplanned support of transit management for an evacuation. These plans contain transit assets, schedules, etc. that have been planned to support an evacuation. The data flow consists of the following data items which are defined in their own DDE:

planned_evacuation_transit_available_resources
+ planned_evacuation_transit_schedule
+ planned_evacuation_transit_routes
+ planned_evacuation_transit_fares

transit_preplanned_incident_responses

This data flow is used within the Manage Transit function and contains the preplanned responses to certain types of transit incidents in response to the request for the store management process to output the contents of the data store that holds this data. It consists of the following item which is defined in its own DDE:

transit_preplanned_responses_for_incidents

transit_preplanned_responses_for_archive

This data flow is used by processes within the Manage Transit function and is passed to the process that collects data for archiving. It contains the following items each of which is defined in its own DDE:

transit_preplanned_responses_for_incidents

transit_preplanned_responses_for_incidents

This data store is generated and used by processes within the Manage Transit function and contains the following items each of which is defined in its own DDE:

transit_coordination_information
+ transit_response_to_incident

transit_probe_data_for_isp

This data flow is sent from the Manage Transit function to the Provide Driver and Traveler Services function. It contains a collection of the smoothed average transit vehicle speeds and travel times for a given link or collection of links. Transit probe information can be provided by fixed route, flexibly routed, and paratransit services. The data flow consists of the following items each of which is defined in its own DDE:

list_size{route_segment_identity
+ probe_data_from_transit}

transit_probe_data_for_traffic

This data flow contains the location of the transit vehicle on each part of its route, i.e., each transit route segment. This data will be used along with other probe data to calculate the link speed or travel time. Transit probe information can be provided by fixed route, flexibly routed, and paratransit services. The data flow consists of the following items each of which is defined in its own DDE:

list_size
+ transit_route_number
+ transit_route_segment_number
+ transit_vehicle_location_for_store
+ transit_vehicle_time

transit_ramp_overall_priority

This data flow is sent from the Manage Transit function to the Manage Traffic function. It contains requests and information on the overall priority which should be given to one or more transit vehicles over a wide area as opposed to priority requests from individual vehicles at a particular set of ramp signals.

transit_ramp_priority_given

This data flow is sent from the Manage Transit function to the Manage Traffic function. It contains confirmation that the overall priority request for one or more transit vehicles over the ramp signals in a wide area as opposed to priority requests from individual vehicles at a particular set of ramp signals has been given. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag

transit_requests

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Transit function and contains requests for information about transit services or a request for a paratransit service, plus traveler identification data and traveler

information for transit operations. It consists of the following data items each of which is defined in its own DDE:

paratransit_service_confirmation
+ paratransit_trip_request
+ transit_services_guidance_request
+ transit_services_personal_request
+ transportation_information_for_transit_operations
+ transit_trip_request
+ transit_trip_request_from_kiosks
+ transit_trip_request_from_user
+ transit_trip_confirmation
+ transit_trip_confirmation_from_kiosks
+ transit_trip_confirmation_from_user

transit_resources_available

This data flow contains a listing of the vehicles and operators that transit has available for use. The data flow consists of the following data items which are defined in their own DDE:

transit_vehicle_availability
+ transit_vehicle_operator_availability

transit_response_to_incident

This data flow is used within the Manage Transit function and contains details of what transit action is required in response to an incident. It is used by processes within that function.

transit_road_overall_priority

This data flow contains requests and information about the overall priority which should be given to one or more transit vehicles at all junctions and/or pedestrian crossings in the road network served by the function, as opposed to priority requests for individual vehicles at specific locations. As this is a 'blanket' application of priority, no list of indicators is needed.

transit_road_priority_given

This data flow is sent from the Manage Traffic function to the Manage Transit function. It contains confirmation that the requested priority has been given to transit vehicles throughout the road network served by the function. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag

transit_roadside_fare_collection_data

This data store contains details of the transit fare transactions that have been processed at a roadside location, i.e. a transit stop, as a result of travelers passing through the location to board transit vehicles. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_fare_collection_data}

transit_roadside_fare_collection_identity

This data flow contains the identity of each transit fare roadside collection point. This is usually a transit stop, although by using a separate identity definition the fare collection points can be in other places such as shopping malls, tourist attractions, travel agencies, etc.

transit_roadside_fare_data

This data flow is sent by the Provide Electronic Payment Services function to the Manage Transit function and contains details of the fares being currently charged for regular transit services. It is for use in calculating fares that are to be paid by travelers at the roadside, i.e. a transit stop, and consists of the following data item which is defined in its own DDE:

transit_fare_data

transit_roadside_fare_payment_confirmation

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that the previous request for the cost of the current transit fare has been deducted successfully from the credit currently stored by the traveler's traveler card / payment instrument. The data flow is used when the traveler is paying for the transit fare at the roadside and consists of the following data item which is defined in its own DDE:

confirmation_flag

transit_roadside_fare_payment_debited

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that the cost of the current transit fare will be deducted by the financial institution from the credit identity previously provided by the traveler card / payment instrument being used by the traveler on-board a transit vehicle. It is only sent when a credit identity has been previously received from the traveler card / payment instrument. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag

transit_roadside_fare_payment_request

This data flow is used within the Provide Electronic Payment Services function and contains the request for the cost of the current transit fare to be deducted from the credit currently stored by the traveler's traveler card / payment instrument, when it is being used at the roadside, i.e. a transit stop. It is only sent when a value of stored credit has been previously received from the traveler card / payment instrument. The data flow consists of the following data item which is defined in its own DDE:

transit_fare

transit_roadside_operational_data

This data flow is used within the Manage Transit function and contains operational data collected from the roadside, i.e. from transit stops. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_roadside_passenger_data}

transit_roadside_passenger_data

This data flow is used within the Manage Transit function. It contains fare collection data concerning travelers (passengers) who, in a certain time period, have passed through a transit stop plus data about the ride which they purchased. The data is derived from roadside fare collection data and is for use in the determination of future transit services. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_stop_number
+ roadside_passenger_data_timeframe
+ list_size
+ list_size{transit_fare_collection_data}

transit_roadside_passenger_data_request

This data flow is used within the Manage Transit function to transfer requests for roadside passenger ride and fare information during a specific time period. It consists of the following data items each of which is defined in its own DDE:

transit_route_stop_number
+ roadside_passenger_data_timeframe

transit_roadway_overall_priority

This data flow is sent from the Manage Transit function to the Manage Traffic function. It contains requests and information on the overall priority which should be given to one or more transit vehicles throughout the road and freeway network served by the function and is different from priority requests from individual vehicles at particular locations. The data flow consists of the following data items each of which is defined in its own DDE:

transit_highway_overall_priority
+ transit_road_overall_priority

transit_roadway_priority_given

This data flow is sent from the Manage Traffic function to the Manage Transit function. It contains confirmation that the overall priority requested for one or more transit vehicles throughout the road and freeway network served by the function has been given. The data flow consists of the following data items each of which is defined in its own DDE:

transit_highway_priority_given
+ transit_road_priority_given

transit_route

This data flow is used within the Provide Driver and Traveler Services function and contains data for a special form of 'route' which only uses transit services. It consists the following data items each of which is defined in its own DDE:

route_cost
+ route_segment_number{route_segment_end_point
+ route_segment_estimated_travel_time
+ route_segment_report_position_points
+ route_segment_start_point}

transit_route_assign_for_archive

This data flow is used within the Manage Transit function to store data that is used in the assignment of new routes to transit vehicle operators. The data is provided by other processes within the function. The flow consists of the following data items each of which is defined in its own DDE:

paratransit_services_for_transit_vehicle_operators
+ transit_services_for_transit_vehicle_operators
+ list_size
+ list_size{transit_vehicle_identity
+ transit_vehicle_availability}

transit_route_corrections

This data flow is used within the Manage Transit function and contains corrections to the current regular transit route. These

corrections are intended to enable the transit vehicles on a particular route to return to their scheduled service for that route.

transit_route_current_use

This data flow contains a count of the number of travelers who have selected a particular route as part of their on-line guidance or through trip planning requests.

transit_route_destination

This data flow is used within the Manage Transit and Provide Electronic Payment Services functions. It contains the destination of a transit route to be used by a traveler (advanced fares). The destination will be defined as the name of a transit stop which should enable each destination to be uniquely identified allowing for the use of a common town or city name.

transit_route_details

This store is used and maintained within the Provide Driver and Traveler Services function and contains the following data items each of which is defined in its own DDE:

transit_vehicle_passenger_loading
+ transit_passenger_capacities
+ transit_vehicle_running_times
+ transit_vehicle_schedule_deviations
+ transit_vehicle_eta
+ transit_route
+ transit_stop_locations
+ transit_schedules

transit_route_fare_data

This data flow is used within the Manage Transit function. It contains details of the traveler fares for all the transit routes operated by the transit fleet from which the request was made. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_route_number
    + transit_route_segment_list}
+ map_transit_data

transit_route_number

This data flow is used within the Manage Transit function and contains the number of a regular transit route. This is stored so that the route number may be the same as that seen by travelers, e.g. 141A, or N177, etc.

transit_route_operational_data

This data flow is used within the Manage Transit function and contains operational data about the number of passengers using each transit route. This data is the average value over short time periods, e.g. five (5) minutes, for a whole day and shows the number of passengers present on transit vehicles for each transit route segment. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_route_number + transit_vehicle_passenger_operational_data}

transit_route_origin

This data flow is used within the Manage Transit and Provide Electronic Payment Services functions. It contains the origin of a transit route to be used by a traveler (advanced fares). The origin will be defined as the name of a transit stop which should enable each destination to be uniquely identified allowing for the use of a common town or city name.

transit_route_schedule_number

This data flow contains the number of the transit service that is operating on a particular route.

transit_route_segment_cost

This data flow is used within the Manage Transit function and contains the cost of the use of a particular transit route segment. It can only be used in association with the segment number, the category of the traveler and the time at which the route is used.

transit_route_segment_identity

This data flow is used within the Manage Transit function. It contains the identity of a transit route segment. The identity is in two parts, the route number on which the segment lies, and the number of the segment along the route. A transit route segment is defined as the link between two successive transit stops, either of which may also be points of interchange with other routes. It is possible for the segments on two or more routes to apply to the same physical link between two stops. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_route_segment_number

transit_route_segment_list

This data flow is used within the Manage Transit function. It contains a list of the transit route segments that make up a particular transit route, plus the cost to a traveler for using each segment and the identity of the road or freeway link(s) over which the route segment runs. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{link_identity_list
+ transit_route_segment_number
+ transit_route_segment_cost}

transit_route_segment_number
This data flow contains the number of a transit route segment within the transit route on which it lies.

transit_route_stop_data
This data flow is used within the Manage Transit function and contains data for each of the transit stops that make up a particular transit route, including facility descriptions and escalator/elevator status. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_route_schedule_number
+ transit_stop_scheduled_time
+ transit_stop_data}

transit_route_stop_list
This data flow is used within the Manage Transit function and is a list of the transit stops that make up a particular transit route and the time at which services on the route will arrive at each stop, and includes facility descriptions and escalator/elevator status. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_route_stop_number
+ transit_route_stop_data}

transit_route_stop_number
This data flow contains the identity number of a transit stop on a transit route. The identity of the route number that goes with the stop is carried in an accompanying data flow. A shelter identifier is associated with the route stop number. The data flow consists of the following data item which is defined in its own DDE:

transit_shelter_id

transit_route_travel_time
This data flow contains the transit travel time between a given origin and destination.

transit_route_use_time
This data flow is used within the Manage Transit function and contains the time at which the associated transit fare will apply, e.g. weekday morning peak, Sunday, public holiday, etc.

transit_routes
This data flow is used within the Manage Transit function. It contains details of the routes being provided by the regular transit operation. The data flow consists of the following data items each of which is defined in its own DDE:

transit_routes_data

transit_routes_current_data
This data flow is used within the Manage Transit function. It contains details of a previously generated transit vehicle route and the routes of the most popular demand responsive transit services. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{paratransit_destination
+ paratransit_pickup_location}
+ transit_passenger_capacities
+ transit_route
+ transit_stop_locations

transit_routes_data
This data flow is used within the Manage Transit function. It contains details of the routes being provided by the transit operation. The list of route segments contains the identity of each link in the road and freeway network associated with the segment to enable them to be output on top of a display of digitized map data. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{transit_route_number
+ transit_route_segment_list
+ transit_route_stop_number}

transit_routes_request
This data flow is used within the Manage Transit function to request a copy of the current transit routes.

transit_routes_updates
This data flow is used within the Manage Transit function and contains details of each transit vehicle route calculated at the request of the transit operations personnel using previously defined parameters and current transit operational data. It consists of

the following data items each of which is defined in its own DDE:

transit_passenger_capacities
+ transit_route
+ transit_stop_locations

transit_running_data_for_advisory_output

This data flow is sent from the Manage Transit function to the Provide Driver and Traveler Services function. It is used to provide data on the current state of transit operation for use in driver and traveler advisories and consists of the following items each of which is defined in its own DDE:

list_size{transit_vehicle_passenger_loading
+ transit_vehicle_running_times
+ transit_vehicle_schedule_deviations
+ transit_vehicle_eta}

transit_running_data_for_demand

This data flow is sent from the Manage Transit function to the Manage Traffic function. It is used to provide data on the current state of transit operation for use in demand forecasting calculations carried out by the Manage Demand facility and consists of the following items each of which is defined in its own DDE:

transit_vehicle_passenger_loading
+ transit_vehicle_deviation_update
+ transit_vehicle_running_times
+ transit_vehicle_schedule_deviations
+ transit_vehicle_eta
+ transit_vehicle_off_route_indication

transit_schedule_current_data

This data flow is used within the Manage Transit function. It contains details of a previously generated schedule of services on each regular transit vehicle route, plus the timings for the most popular demand responsive transit services. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{paratransit_arrival_time
+ paratransit_destination
+ paratransit_pickup_time
+ paratransit_pickup_location}
+ transit_schedule_data

transit_schedule_data

This data flow is used within the Manage Transit function and contains the schedule of services on each transit vehicle route, the cost to the traveler of the use of each route segment, and facility descriptions, including escalator/elevator status. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_route_number
+ transit_route_segment_list
+ transit_route_stop_list
+ transit_schedule_identity}

transit_schedule_identity

This data flow contains the identity of a particular set of transit schedules. This data flow may include a short description of when (day and/or period) the schedule is expected to apply.

transit_schedule_information_during_emergencies

This data flow contains information on transit service or schedule changes that have been put into effect in response to disaster or other emergencies. The data flow consists of the following data items which are defined in their own DDE:

transit_schedule_data

transit_schedule_information_during_evacuation

This data flow contains information on transit service or schedule changes that have been put into effect in response to evacuations. The data flow consists of the following data items which are defined in their own DDE:

transit_schedule_data

transit_schedule_request

This data flow is used within the Manage Transit function to request a copy of the current schedules of transit services on the transit routes.

transit_schedule_updates

This data flow is used within the Manage Transit function. It contains the schedule of services on a transit vehicle route calculated

at the request of the transit operations personnel using previously defined parameters and current transit operational data. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_route_segment_list
+ transit_route_stop_list
+ transit_schedule_identity

transit_schedules

This data flow is used within the Manage Transit function. It contains the schedule of the timings of services on each regular transit route. The data flow consists of the following data item which is defined in its own DDE:

transit_schedule_data

transit_security_info_for_archive

This data flow is used within the Manage Transit function and contains information about an incident in the transit operations network. It consists of the following data items each of which is defined in its own DDE:

transit_incident_info_for_archive
+ transit_emergency_data_for_archive

transit_service_external_data

This data flow is used within the Manage Transit function. It contains transit services (routes, schedules and transfer points) in their raw form for distribution to and use by processes in other ITS functions. The map data of transit routes is included to enable output of displays showing transit routes by processes that do not have access to a digitized map database. Those that do can use the link identity in the transit routes data to map out the transit route. The data flow consists of the following items of data both of which are defined in their own DDE's:

transit_routes_data
+ transit_schedule_data
+ transit_transfer_cluster_list
+ trmc_list
+ map_transit_data

transit_service_internal_data

This data flow is used within the Manage Transit function and contains data about the current transit services (routes and schedules) in their raw form. It is used for distribution to and use by other processes within the local function. The map data is included to enable the transit route(s) and any data provided with them by a local process to be output as a map type display. The data flow consists of the following items of data both of which are defined in their own DDE:

transit_routes_data
+ transit_schedule_data
+ map_transit_data

transit_service_planning_parameters

This data store is used within the Manage Transit function and contains parameters collected from actual transit operations that are used to generate transit routes and schedules.

transit_service_raw_data

This data store is used within the Manage Transit function and contains the raw output from the transit service generation processes, i.e. raw routes, schedules and transfer points. The term raw indicates that the data is not in a form that would be readily understandable by transit operations personnel and travelers, without some subsequent processing. It is therefore intended for use by other processes and consists of the following data items each of which is defined in its own DDE:

transit_routes_data
+ transit_schedule_data
+ transit_transfer_cluster_list

transit_service_status

This data flow is sent from the transit vehicle operator to the Manage Transit function. It provides input from the transit vehicle operator to the Transit Management Operations Center concerning transit schedules, passenger loading, and other service status.

transit_services

This data flow is sent by the Manage Transit function to other ITS functions. It contains a complete set of all the transit routes and the services that run upon them, including timings, etc. that are currently being provided by the transit fleet. This data is a processed version of the raw data to enable it to be easily understood by the recipients such as drivers and travelers. The data also includes facility descriptions and escalator/elevator status. The data flow consists of the following items each of which is defined in its own DDE:

transit_routes_data
+ transit_schedule_data
+ map_transit_data

transit_services_changes_request

This data flow is sent by the Manage Traffic function to the Manage Transit function and is a request to change the current transit services in response to changes in demand, or a desire to change the modal split currently being used by travelers.

transit_services_changes_response

This data flow is sent by the Manage Transit function to the Manage Traffic function and is the response to the previous request for changes in the transit services.

transit_services_data_for_output

This data flow is used within the Manage Transit function and contains data about the current transit services (routes and schedules) in their raw form. It is used to produce output for the transit system operator when requested. The data flow consists of the following items of data each of which is defined in its own DDE:

transit_routes_data
+ transit_schedule_data
+ trmc_list

transit_services_demand_request

This data flow is sent from the Manage Traffic function to the Manage Transit function. It is a request for supply of details of the transit services and will be used in the preparation of demand forecasts by the Manage Demand facility. The data flow consists of the following data items each of which is defined in its own DDE:

tmc_identity
+ transit_services_request

transit_services_demand_response_request

This data flow is used within the Manage Transit function. It is sent from the Demand Responsive Transit facility to request details of the regular transit services being currently provided by the transit fleet. It consists of the following data item which is defined in its own DDE:

transit_services_request

transit_services_for_advanced_fares

This data flow is sent from the Manage Transit function to the Provide Electronic Payment Services function. It contains details of the traveler fares for all the transit routes operated by the transit fleet from which the request was made. This data is for use in processing advanced transit fare payments initiated by drivers at toll plazas or parking lots. The data flow consists of the following data item which is defined in its own DDE:

transit_route_fare_data

transit_services_for_advisory_data

This data flow is sent from the Manage Transit function to the Provide Driver and Traveler Services function. It contains a complete set of all the transit routes and the services that run upon them, including timings, etc., that are provided by the transit fleet from which the data was requested, for use in the preparation of driver and traveler advisory information for output on-board vehicles. It consists of the following data items each of which is defined in its own DDE:

transit_services
+ trmc_list

transit_services_for_corrections

This data flow is used within the Manage Transit function. It is sent to the Operate Transit Vehicles facility for use in the calculation of corrections to transit vehicle routes and schedules to restore a service to normal operation. It contains a complete set of all the transit routes and the services that run upon them, including timings, etc. that are provided by the transit fleet from which the data was requested. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{transit_services}

transit_services_for_demand

This data flow is sent from the Manage Transit function to the Manage Traffic function. It contains a complete set of all the transit routes and the services that run upon them, including timings, etc., that are provided by the transit fleet from which the data was requested, for use in the calculation of demand forecasts by the Manage Demand facility. The data flow consists of the following data items each of which is defined in its own DDE:

transit_services
+ trmc_list

transit_services_for_demand_response

This data flow is used within the Manage Transit function. It contains details of the services being currently provided by the regular transit fleet and consists of the following data item which is defined in its own DDE:

transit_services

transit_services_for_deployment

This data flow contains details of the current transit services for use in the analysis of ITS operating performance and consists of

the following data item which is defined in its own DDE:

transit_services

transit_services_for_eta

This data flow is used within the Manage Transit function. It is sent to the Operate Transit Vehicles facility for use in the calculation of transit vehicle estimated times of arrival (eta) at transit stops. It only contains details of the schedule for the transit route that is currently being operated by the vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_route_segment_list
+ transit_route_stop_list

transit_services_for_eta_request

This data flow is used within the Manage Transit function to request the details of the current transit service so that a transit vehicle can calculate its current deviation relative to that schedule. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_route_number
+ transit_route_schedule_number

transit_services_for_guidance

This data flow is sent from the Manage Transit function to the Provide Driver and Traveler Services function. It contains a complete set of all the transit routes and the services that run upon them, including timings, etc. that are provided by the transit fleet from which the data was requested, for use in the preparation of data for output as on-line driver and traveler guidance data. The data flow consists of the following data items each of which is defined in its own DDE:

transit_services_for_output
+ traveler_identity

transit_services_for_isp

This data flow is used within the Manage Transit function and contains a complete set of all the transit routes and the services that run upon them, including timings for use in the distribution to travelers and transit facility information (e.g., escalator/elevator status). It consists of the following data item which is defined in its own DDE:

transit_services

transit_services_for_other_transit_management

This data flow is used within the Manage Transit function and contains details of the local transit services (routes, schedules and transfer points) for use by other adjacent transit centers so that coordination of services can be achieved for the benefit of travelers. It consists of the following items of data each of which is defined in its own DDE:

transit_routes_data
+ transit_schedule_data
+ transit_transfer_cluster_list
+ trmc_list

transit_services_for_output

This data flow is used within the Manage Transit function and contains details of the transit route(s) that fulfill the origin-destination requirements of a particular traveler's request. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ list_size{transit_route_segment_number
    + transit_route_segment_cost
    + transit_stop_scheduled_time
    + transit_route_travel_time}

transit_services_for_personal_devices

This data flow contains details of the current transit services for output to a traveler's personal device and consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ transit_services_for_output

transit_services_for_roadside_fares

This data flow is used within the Manage Transit function. It contains details of the traveler fares for all the transit routes operated by the transit fleet from which the request was made. This data is for use in processing transit fare payments initiated by travelers at the roadside (a transit stop). The data flow consists of the following data item which is defined in its own DDE:

transit_route_fare_data

transit_services_for_scenarios

This data flow is used within the Manage Transit function. It is sent to the Operate Transit Vehicles facility for use in the calculation of the scenarios for the return of transit vehicles to their published schedules and routes. It contains a complete set of all the transit routes and the services that run upon them, including timings, etc. that are provided by the transit fleet from which the data was requested.

list_size
+ list_size{transit_services}
+ map_transit_data

transit_services_for_transit_vehicle_operators

This data flow is used within the Manage Transit function. It is sent to the Generate Transit Vehicle Operator Schedules facility and contains a complete set of all the transit routes and the services that run upon them, including timings, etc. that are provided by the transit fleet from which the data was requested.

list_size
+ list_size{transit_services}

transit_services_for_travelers

This data flow is used within the Manage Transit function. It is sent to the Provide Traveler Transit Interface facility and contains a complete set of all the transit routes and the services that run upon them, including timings, etc. that are provided by the transit fleet from which the data was requested. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ transit_services_for_output

transit_services_for_vehicle_fares

This data flow is used within the Manage Transit function. It contains details of the traveler fares for all the transit routes operated by the transit fleet from which the request was made. This data is for use in processing transit fare payments initiated by travelers on-board a transit vehicle. The data flow consists of the following data item which is defined in its own DDE:

transit_route_fare_data

transit_services_guidance_request

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Transit function. It is a request for supply of details of the services being currently provided by the transit fleet and will be used in the preparation of on-line traveler guidance data. The process(es) that are providing the interface through which the traveler is obtaining the on-line guidance will have to provide the origin and destination so that the receiving process in the Manage Transit function can work out for which transit route(s) data will be provided. The data flow consists of the following data items each of which is defined in its own DDE:

destination
+ origin
+ traveler_identity

transit_services_personal_request

This data flow is a request for supply of details of transit services for output to a traveler's personal device. The traveler will have to provide the origin and destination so that the receiving process can work out for which transit route(s) data will be provided. The data flow consists of the following data items each of which is defined in its own DDE:

destination
+ origin
+ traveler_identity

transit_services_request

This data flow contains a request for details of the regular transit services being currently provided by the transit fleet. The size of this flow enables an identity to be set for each actual service for which data is required.

transit_services_roadside_data

This data store is used within the Manage Transit function and contains all the data that has been output to the traveler at a transit stop. The data is held local to the stop and is used as a source of data if communications with the transit management center, or local transit vehicle is not available. The data is replaced when new updates are obtained, or in the case of transit vehicles when the vehicle leaves the transit stop. This data store consists of the following items of data, each of which is defined in its own DDE:

transit_services_for_travelers
+ transit_vehicle_arrival_time
+ transit_vehicle_user_data

transit_services_travelers_request

This data flow is used within the Manage Transit function to request the details of the current transit services for a traveler at the roadside. The traveler will have to provide the origin and destination so that the receiving process can work out for which transit route(s) data will be provided. The data flow consists of the following data items each of which is defined in its own DDE:

destination
+ origin

+ traveler_identity

transit_shelter_id

This data flow is used within the Manage Transit function and contains the identity of an individual transit shelter at a transit stop. This data is used by processes within the function to identify the source and/or ownership of other data.

transit_status_for_disaster

This data flow contains information about the public transportation network that may be used during disaster response and recovery operations. This could include high-level information concerning the status of the entire transit system or details concerning changes to routes and schedules pertinent to the disaster situation including damage that has been sustained.

transit_status_for_evacuation

This data flow contains information about the public transportation network that may be used during evacuations. This could include high-level information concerning the status of the entire transit system or details concerning changes to routes and schedules pertinent to the evacuation situation including damage that has been sustained.

transit_stop_data

This data flow contains data for each transit stop that describes the facility, including escalator/elevator status.

transit_stop_locations

The data flow is used within the Manage Transit function and provides the location of stops on transit routes. It consists of the following data items each of which is defined in its own DDE:

list_size{transit_route_stop_number
+ transit_route_number
+ location_identity}

transit_stop_scheduled_time

This data flow is used within the Manage Transit function and contains the time at which a transit vehicle is scheduled to reach each stop on a transit route. This will thus be the scheduled time of arrival at the end of a transit route segment. The identity of the transit route segment to which this data applies is carried in an accompanying data flow. The data flow consists of the following data item which is defined in its own DDE:

time

transit_system_status

This data flow is sent from the Manage Transit to Emergency Management functions and contains information about the public transportation network that may be used by the Disaster and Evacuation function. This data could include information about transit incidents at stops or stations, or about transit emergencies on-board the transit vehicle. It consists of the following data items each of which is defined in its own DDE:

emergency_data_for_transit
+ evacuation_status_report
+ transit_preplanned_evacuation_plan
+ secure_transit_vehicle_alarm_request_for_transit
+ faas-alerts_and_advisories_for_transit
+ threat_information_for_dissemination
+ infrastructure_integrity_status_for_transit
+ transit_incident_details
+ transit_preplanned_responses_for_incidents
+ transit_evacuation_plan
+ transit_vehicle_disable_from_operator
+ disaster_response_plan_coordination_to_transit
+ transit_operator_security_action

transit_technician_data

This data store is used within the Manage Transit function and contains data about all the transit technicians available to carry out maintenance work on the vehicles in a transit fleet. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_technician_detail}

transit_technician_detail

This data flow is used within the Manage Transit function and contains data about transit technicians. It consists of the following data items each of which is defined in its own DDE:

transit_technician_identity
+ transit_technician_seniority
+ transit_technician_work_assignment
+ transit_technician_work_hours
+ transit_technician_work_log
+ transit_technician_work_preferences
+ transit_technician_work_skills

transit_technician_identity

This data flow is used within the Manage Transit function and contains the identity of an individual transit technician. It is used to identify other data about the technician, which will be found in associated data flows.

transit_technician_info

This data flow is used within the Manage Transit function and contains data about all the transit technicians available to carry out maintenance work on the vehicles in a transit fleet. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_technician_detail}

transit_technician_seniority

This data flow contains the seniority of an individual transit technician.

transit_technician_work_assignment

This data flow is used within the Manage Transit function and contains information on the work assignment that has been given to the transit technician to carry out. It will involve some transit vehicle maintenance work. The data flow consists of the following data items each of which is defined in its own DDE:

transit_technician_identity
+ transit_vehicle_identity
+ transit_vehicle_maintenance_work

transit_technician_work_hours

This data flow contains the number of hours per week, per month and per year that an individual transit technician is able to work. The identity of the technician is contained in a separate data flow.

transit_technician_work_log

This data flow is used within the Manage Transit function and contains the log of maintenance work carried out by an individual transit technician. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{date
    + time
    + transit_vehicle_identity
    + transit_vehicle_maintenance_work}

transit_technician_work_preferences

This data flow contains the work preferences of an individual transit technician. They are defined as a series of character codes, which include but are not limited to day time working only, night time working only, weekday working only, i.e. no weekend working, limited day time hours, no working constraints, i.e. can work any hours on any days, limited night time hours, can work outside of the maintenance facility, e.g. on the road.

transit_technician_work_skills

This data flow contains the skills that are possessed by an individual transit technician. These skills are defined as character codes and may describe but not be limited to general maintenance technician (no specialties), vehicle engine specialist, vehicle transmission specialist, vehicle running gear specialist, vehicle body work specialist, has a transit vehicle driving license.

transit_to_m_and_c

This DFD flow represents the data flows from Manage Transit to Manage Maintenance and Construction. The DFD flow consists of the following data flows each of which is defined in its own DDE:

m_and_c_plan_feedback_from_transit

transit_transfer_cluster

This data flow is used within the Manage Transit function and represents each transfer cluster. A transfer cluster is a collection of stop points in the same vicinity where transfers between [transit] routes can be made conveniently. This may include transfers between bus routes (in the same or different transit agencies), between bus routes and light or commuter rail lines (including BRT [Bus Rapid Transit]), or between light and/or heavy rail passenger lines. A transit station generally has many subway lines. This data flow consists of the following data items each of which is defined in its own DDE:

transit_stop_locations
+ trmc_identity

transit_transfer_cluster_list

This data flow is used within the Manage Transit function and contains a list of transit transfer clusters. A transfer cluster is a collection of stop points in the same vicinity where transfers between [transit] routes can be made conveniently. This data flow contains the following data items which are defined in their own DDE:

list_size{transit_transfer_cluster}

transit_transfer_point

This data flow is used within the Manage Transit function and represents each transfer point. A transfer point is a location where two or more transit routes or rail lines provide service to the same or very closely located stop points, allowing passengers to

conveniently switch between services [and possibly transportation modes] provided on the various routes. This data flow consists of the following data items each of which is defined in its own DDE:

transit_stop_locations
+ trmc_identity

transit_transfer_point_list
This data flow is used within the Manage Transit function and contains a list of transit transfer points. A transfer point is a location where two or more transit routes or rail lines provide service to the same or very closely located stop points, allowing passengers to conveniently switch between services [and possibly transportation modes] provided on the various routes. This data flow contains the following data items which are defined in their own DDE:

list_size{transit_transfer_point}

transit_traveler_data
This data includes the contents of a data store used to collect transit related information from transit agencies and other traveler information service providers to support the Provide Driver and Traveler Services functions. It consists of the following items each of which is defined in its own DDE:

foisp-transit_data
+ transit_vehicle_deviations_details
+ transit_services_for_guidance
+ transit_services_for_isp
+ transit_transfer_point_list
+ transit_incident_data
+ transit_fare_data_for_isp

transit_traveler_data_collected_for_personnel
This data flow is used within the Provide Driver and Traveler Services function and contains information for use by personnel about the information collected from transit agencies. The data flow consists of the following data item which is defined in its own DDE:

transit_traveler_data

transit_traveler_data_collection_parameters
This data contains parameters to be used to govern transit traveler data collection to support traveler services (trip planning, broadcast data, etc.).

transit_traveler_wide_area_alert_info
This data flow is used to provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction information to be displayed on the transit vehicle. The data flow consists of the following data item which is defined in its own DDE:

wide_area_alert_notification_for_transit

transit_trip_confirmation
This data flow contains a confirmation that the trip plan provided will be undertaken so that connection protection can be considered for the traveler's trip.

transit_trip_confirmation_from_kiosks
This data flow contains a confirmation from the traveler that they will take the trip plan provided by the transit center.

transit_trip_confirmation_from_user
This data flow contains a confirmation from the traveler that they will take the trip plan provided by the transit center.

transit_trip_plan_for_kiosks
This data flow contains the portion of an individual's trip plan that can be provided by a transit system which can include connection protection.

transit_trip_plan_for_user
This data flow contains the portion of an individual's trip plan that can be provided by a Transit system which can include connection protection.

transit_trip_request
This data flow contains a request from an Information Service Provider to a Transit Management System for an individual transit or multimodal trip.

transit_trip_request_from_kiosks
This data flow contains a request from a traveler for transit service with connection protection.

transit_trip_request_from_user
This data flow contains a request from a traveler for transit service with connection protection.

transit_updates
This data flow is sent from the Manage Traffic function to the Manage Transit function and contains traffic data for use in transit

operations, requests for information on transit services, or requests for changes to transit services to try and re-distribute traveler demand. It consists of the following data items each of which is defined in its own DDE:

prediction_data
+ planned_events
+ transit_conditions_demand_request
+ transit_ramp_priority_given
+ transit_roadway_priority_given
+ transit_services_demand_request
+ transit_services_changes_request
+ traffic_data_for_transit
+ current_incidents_data_for_transit
+ traffic_video_for_transit
+ roadway_detours_and_closures_for_transit
+ static_parking_information_for_transit
+ dynamic_parking_information_for_transit
+ incident_response_log_for_transit

transit_user_information

This data flow contains an individual service request from a transit user on a transit vehicle. The information provided will be used to identify a set of transit (or other transportation options) with the intent of providing connection protection for the transit user during their individual trip.

transit_vehicle_achieved_time

This data flow is used within the Manage Transit function and contains the time at which a transit vehicle actually reached the end of a transit route segment. This point is usually a transit stop and the data is thus the arrival time of a transit vehicle at each of the transit stop(s) along the transit route. The identity of the transit route segment to which this data applies is carried in an accompanying data flow. The data flow consists of the following data item which is defined in its own DDE:

time

transit_vehicle_advanced_payment_request

This data flow is used within the Manage Transit function and contains data about advanced fares and tolls requested by travelers (users of the transit system) from on-board transit vehicles. It consists of the following data items each of which is defined in its own DDE:

advanced_charges
+ advanced_tolls
+ transit_vehicle_location

transit_vehicle_advanced_payment_response

This data flow is used within the Manage Transit function and contains the result of the requested advanced payment transaction from a traveler (user of the transit system) in a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

advanced_charges_confirm
+ advanced_tolls_confirm
+ confirmation_flag
+ transit_vehicle_identity

transit_vehicle_advisory_eta

This data flow is used as an interface between the Manage Transit and Provide Driver and Traveler Information functions. It contains the estimated time of arrival of a transit vehicle at the end of a transit route segment, which is usually a stop, plus the route and service number on which it is operating. It is used for individual transit vehicle deviations and contains the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_vehicle_time
+ transit_route_number

transit_vehicle_arrival_time

This data flow is used within the Manage Transit function. It contains the estimated time of arrival of a transit vehicle at a stop plus the route and service number on which it is operating.

transit_vehicle_arrival_times

This data flow is used within the Manage Transit function. It contains the time at which it is expected that a transit vehicle will reach the end of transit_route segments on its route and is used to determine any schedule deviations. The end of a transit route segment is usually a transit stop and the data is thus the expected arrival time of a transit vehicle at each of the transit stop(s) along the transit route. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ list_size
+ list_size{transit_route_segment_number
    + transit_stop_scheduled_time}

transit_vehicle_assignment_data

This data flow contains the set of vehicle assignments to routes. It consists of the following items each of which is defined in its own DDE:

list_size{transit_vehicle_identity + transit_route_number}

transit_vehicle_assignment_for_operations

This data flow contains the assignment of a vehicle to a certain route (run) taking into account service requirements, routing plans, and updates of vehicle operators. This flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_route_number

transit_vehicle_assignment_for_vehicle

This data flow provides the equipment on-board a transit vehicle with the assignment of a vehicle to a certain route (run) taking into account service requirements, routing plans, and updates of vehicle operators. This flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_route_number

transit_vehicle_availability

This data flow is used within the Manage Transit function and contains details of a transit vehicle's availability for work.

transit_vehicle_collected_maintenance_data

This data flow is used by processes within the Manage Transit function and contains data collected from the transit vehicle. The data is produced by sensors analyzing conditions on-board the vehicle during the course of its operation. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_mileage_accumulated
+ transit_vehicle_operating_condition

transit_vehicle_collected_maintenance_data_request

This data flow is used by processes within the Manage Transit function and contains a request for data collected on-board the transit vehicle. The data is produced by sensors analyzing conditions on-board the vehicle during the course of its operation.

transit_vehicle_conditions_for_inventory

This data flow is used to pass information about the transit vehicle conditions to the inventory facility and contains data and operational status of the sensors that has been collected and processed by sensors on-board the vehicle. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_collected_maintenance_data
+ transit_vehicle_identity
+ transit_vehicle_location

transit_vehicle_data

This data flow is used by processes within the Manage Transit function and contains data about transit vehicles in the fleet operated by the function. This data is used in the planning of routes and schedules for regular transit services. It will have been obtained from processing the input to sensors on-board each transit vehicle during the course of their operation. The data flow consists of the following items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_identity + transit_vehicle_passenger_loading}

transit_vehicle_data_for_archive

This data flow within the Manage Transit function contains data about transit vehicles in the fleet operated by the function. This data is to be stored for later use. The data flow consists of the following items each of which is defined in its own DDE:

transit_vehicle_data
+ transit_vehicle_information

transit_vehicle_data_for_security

This data flow is used by processes within the Manage Transit function and contains information sent to the transit security function. This data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_off_route_indication
+ transit_vehicle_location_for_security

transit_vehicle_deviation_update

This data flow is used within the Manage Transit function. It contains the estimated time of arrival of several transit vehicles at stop(s) along their route(s) plus the route and service number on which they are operating. It is used for multiple transit vehicle deviations where one or more routes are affected and consists of the following data items each of which is defined in its own DDE:

list_size
+ 1{transit_vehicle_identity
  + transit_vehicle_time
  + transit_route_number
  + transit_route_segment_number}list_size

transit_vehicle_deviations_details
This data flow is used within the Manage Transit function. It contains details of the deviations of transit vehicles from their published routes and schedules, as well as current bus locations, and is used as a source of data to be sent to processes in other functions. The data flow consists of the following data items each of which is defined in is own DDE:

transit_vehicle_eta
+ transit_vehicle_running_times
+ transit_vehicle_passenger_loading
+ transit_vehicle_deviation_update
+ transit_vehicle_location
+ transit_vehicle_schedule_deviations

transit_vehicle_deviations_from_schedule
This data flow is used within the Manage Transit function and contains the deviations of a transit vehicle from its published schedule. It is used in calculating the return to the published schedule where the deviation is major and/or it applies to several vehicles on a particular route.

transit_vehicle_disable_acknowledge
This data flow contains an acknowledgement from the on-board processes that it has received the signal to disable the transit vehicle.

transit_vehicle_disable_acknowledge_to_operator
This data flow provides the status, acknowledgement, and feedback to the transit system operator that their request to disable a transit vehicle has been received by the vehicle.

transit_vehicle_disable_from_operator
This data flow is initiated by the transit system operator and sent to the Manage Transit function to disable a transit vehicle. Conditions where this command may occur include an incident in progress concerning the transit vehicle, such as a hijacking or armed robbery. This command would not be used for a less serious incident, such as an argument between passengers, or for a health emergency (e.g., heart attack) where the vehicle might be moving towards a hospital, or paramedics are on the way. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time
+ transit_vehicle_location

transit_vehicle_disable_reset
This data flow contains the command to reset the transit vehicle for transit vehicle operator logon. Conditions where this command may occur include when the transit vehicle operator has entered a password too many times and the system has not accepted it for operator authentication (i.e., a threshold was reached), or if an incident was in progress and the transit vehicle was disabled, but the incident is now over and the disabling is to be cancelled. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time
+ transit_vehicle_location

transit_vehicle_disabled
This data flow is initiated by the transit operations personnel and sent through the Manage Emergency Services function to the transit vehicle operator on-board a transit vehicle. The data flow contains status of the transit vehicle disabling initiated by the transit system operator during a serious incident or hijacking on the vehicle.

transit_vehicle_eta
This data flow is used within the Manage Transit function. It contains the estimated time of arrival of a transit vehicle at the end of a transit route segment, which is usually a stop, plus the route and service number on which it is operating. It is used for individual transit vehicle deviations and contains the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_vehicle_time
+ transit_route_number
+ transit_route_segment_number

transit_vehicle_eta_for_advisory
This data flow contains the estimated time of arrival of a transit vehicle at the end of a transit route segment, which is usually a stop, plus the route and service number on which it is operating. It is used for individual transit vehicle deviations and contains the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_vehicle_time

+ transit_route_number

transit_vehicle_fare_collection_data

This data store contains details of the transit fare transactions that have been processed on the vehicle as a result of travelers coming on-board and requesting rides that they have not paid for at the roadside, i.e. a transit stop. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_fare_collection_data}

transit_vehicle_fare_collection_method

This data flow contains an indication of whether a batch or interactive method is being used for processing the fare collection data.

transit_vehicle_fare_data

This data flow is sent by the Provide Electronic Payment Services function to the Manage Transit function and contains details of the fares currently being charged for regular transit services. It is for use in calculating fares that are to be paid by travelers on-board a transit vehicle and consists of the following data item which is defined in its own DDE:

transit_fares

transit_vehicle_fare_payment_confirmation

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that the previous request for the cost of the current transit fare has been deducted from the credit currently stored by the traveler's traveler card / payment instrument has been completed successfully. The data flow is used when the traveler is paying for the transit fare on-board a transit vehicle and consists of the following data item which is defined in its own DDE:

confirmation_flag

transit_vehicle_fare_payment_debited

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that the cost of the current transit fare will be deducted by the financial institution from the credit identity previously provided by the traveler card / payment instrument being used by the traveler at the roadside. It is only sent when a credit identity has been previously received from the traveler card / payment instrument. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag

transit_vehicle_fare_payment_request

This data flow is used within the Provide Electronic Payment Services function and contains the request for the cost of the current transit fare to be deducted from the credit currently stored by the traveler's traveler card / payment instrument, when it is being used on-board a transit vehicle. It is only sent when a value of stored credit has been previously received from the traveler card / payment instrument. The data flow consists of the following data item which is defined in its own DDE:

transit_fare

transit_vehicle_identity

This data flow contains the identity of an individual transit vehicle and is used to identify the source and/or ownership of other data.

transit_vehicle_information

This data flow is used by processes within the Manage Transit function and contains data about an individual transit vehicle. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_passenger_loading
+ transit_vehicle_running_times
+ transit_vehicle_collected_maintenance_data
+ transit_vehicle_eta
+ transit_vehicle_deviation_update
+ transit_vehicle_identity
+ transit_vehicle_location
+ transit_vehicle_schedule_deviations
+ transit_vehicle_off_route_indication
+ transit_service_status

transit_vehicle_intersection_priority

This data flow contains data necessary for a transit vehicle to be given priority at a traffic signal controller that is for a particular set of intersection control signals. The data flow is sent directly from the transit vehicle to the intersection controller, which is assumed to be capable of giving priority to the correct phase(s) for any received priority request.

transit_vehicle_inventory_for_assignment

This data flow is used within the Manage Transit function and contains the list of transit vehicles available for scheduling. This data flow contains the following data items each of which is defined in its own DDE:

list_size{transit_vehicle_identity + transit_vehicle_availability + transit_vehicle_type}

transit_vehicle_location

This data flow is used within the Manage Transit function to provide the exact location of the transit vehicle. It contains the transit vehicle location plus its identity and consists the following items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_vehicle_location_data

transit_vehicle_location_data

This data flow is used within the Manage Transit function to provide the exact location of the transit vehicle. It is based on the standard vehicle location data supplemented with additional data that is only relevant to transit vehicles. The data flow consists of the following data item which is defined in its own DDE:

location_identity

transit_vehicle_location_for_advisories

This data flow is used within the Manage Transit function to provide the exact location of a transit vehicle for the provision of advisory information on board a transit vehicle. It contains the transit vehicle location plus its identity. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location

transit_vehicle_location_for_alarms

This data flow is used to notify the Manage Emergency function of the exact location of the transit vehicle. It contains the transit vehicle location plus its identity. It is used to provide the location of the transit vehicle in which a traveler has initiated an alarm or emergency notification. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location

transit_vehicle_location_for_deviation

This data flow is used within the Manage Transit function to provide the exact location of the transit vehicle for the calculation of any return to schedule scenarios. It contains the transit vehicle location plus its identity and consists of the following item which is defined in its own DDE:

transit_vehicle_location

transit_vehicle_location_for_eta

This data flow is used within the Manage Transit function to provide the exact location of the transit vehicle for calculation of its estimated time of arrival (eta). It contains the transit vehicle location plus the its identity and consists the following item which is defined in its own DDE:

transit_vehicle_location

transit_vehicle_location_for_fares

This data flow is used within the Manage Transit function to provide the exact location of a transit vehicle for on-board fare collection and traveler services functions. It contains the transit vehicle location plus its identity. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location

transit_vehicle_location_for_security

This data flow is used within the Manage Transit function to provide the exact location of a transit vehicle and related operational conditions data for purposes of security management operations. It contains the transit vehicle location plus its identity and operating conditions. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_location
+ transit_vehicle_on_board_data

transit_vehicle_location_for_sensors

This data flow is used to notify the Manage Emergency function of the exact location of the transit vehicle. It contains the transit vehicle location plus its identity. It is used to provide the location of the transit vehicle containing security sensor functions. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location

transit_vehicle_location_for_store

This data flow is used within the Manage Transit function to provide the exact location of the transit vehicle for storage so that it can be used by other facilities and functions within ITS. It contains the transit vehicle location plus the its identity and consists the following item which is defined in its own DDE:

transit_vehicle_location

transit_vehicle_location_for_surveillance_and_security

This data flow is used to notify the Manage Emergency function of the exact location of the transit vehicle. It contains the transit vehicle location plus its identity. It is used to provide the location of the transit vehicle containing security surveillance functions.

It consists of the following data item which is defined in its own DDE:

transit_vehicle_location

transit_vehicle_maintenance
This data flow contains data on the need for maintenance of an individual transit vehicle based on its current condition. This maintenance work will be in addition to the maintenance that is scheduled to take place because the vehicle has covered a proscribed number of miles, or has achieved a certain age. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_maintenance_date
+ transit_vehicle_maintenance_mileage
+ transit_vehicle_maintenance_required
+ transit_vehicle_status

transit_vehicle_maintenance_activity
This data flow is used within the Manage Transit function to support the monitoring of a maintenance activity on a transit vehicle. This flow consists of the following items each of which is defined in its own DDE:

transit_vehicle_maintenance_specs
+ transit_vehicle_status

transit_vehicle_maintenance_data
This data flow is used within the Manage Transit function and contains maintenance data for a transit vehicle. This is for output to the transit system operator and is sent in response to a request for data received from the operator. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_vehicle_maintenance

transit_vehicle_maintenance_data_request
This data flow is used within the Manage Transit function. It contains a request for the output of transit vehicle maintenance data to the transit system operator from the store of this data. The data flow consists of the following data item which is defined in its own DDE:

transit_vehicle_identity

transit_vehicle_maintenance_date
This data flow is used within the Manage Transit function. It contains the date on which unscheduled maintenance activity on a particular transit vehicle must take place and is used as one of the identifiers of data within the vehicle's maintenance log. The vehicle's identity is stored in a separate data flow. The data flow consists of the following data item which is defined in its own DDE:

date

transit_vehicle_maintenance_details
This data flow is used within the Manage Transit function and contains information about the maintenance required by an individual transit vehicle of a particular type.

transit_vehicle_maintenance_info
This data flow is used within the Manage Transit function. It contains maintenance and other information about transit vehicles for use by processes within the schedule transit vehicle maintenance facility. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_identity
    + transit_vehicle_operations_details}

transit_vehicle_maintenance_information
This data flow is used within the Manage Transit function and contains data on the need for maintenance of an individual transit vehicle based on its current condition.

transit_vehicle_maintenance_log
This data flow contains a log of the maintenance carried out on an individual transit vehicle, the identity of which is stored in a separate data flow. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_maintenance_log_time
+ transit_vehicle_maintenance_log_date
+ transit_vehicle_maintenance_log_activity
+ transit_vehicle_maintenance_log_mileage

transit_vehicle_maintenance_log_activity
This data flow contains a brief description of the maintenance activity that has taken place on a particular transit vehicle took place. The vehicle's identity, plus the date, time and mileage at which the activity took place are stored in separate data flows. The data flow to accommodate a simple brief description of the activity.

transit_vehicle_maintenance_log_data
This data flow is used within the Manage Transit function. It contains data for recording in the transit vehicle maintenance log that is held in the store of transit vehicle operations data.

transit_vehicle_maintenance_log_date
This data flow is used within the Manage Transit function. It contains the date at which maintenance activity on a particular transit vehicle took place and is used as one of the identifiers of data within the vehicle's maintenance log. The vehicle's identity is stored in a separate data flow. The data flow consists of the following data item which is defined in its own DDE:

date

transit_vehicle_maintenance_log_mileage
This data flow contains the vehicle mileage at which maintenance activity on a particular transit vehicle took place and is used as one of the identifiers of data within the vehicle's maintenance log. The vehicle's identity is stored in a separate data flow.

transit_vehicle_maintenance_log_time
This data flow is used within the Manage Transit function. It contains the time at which maintenance activity on a particular transit vehicle took place and is used as one of the identifiers of data within the vehicle's maintenance log. The vehicle's identity is stored in a separate data flow. The data flow consists of the following data item which is defined in its own DDE:

time

transit_vehicle_maintenance_mileage
This data flow contains the mileage at which unscheduled maintenance activity on a particular transit vehicle must take place and is used as one of the identifiers of data within the vehicle's maintenance log. The vehicle's identity is stored in a separate data flow.

transit_vehicle_maintenance_required
This data flow contains a brief description of the unscheduled maintenance activity that must take place on a particular transit vehicle. The vehicle's identity, plus the date and mileage at which the activity must take place are stored in separate data flows.

transit_vehicle_maintenance_schedule
This data flow contains the schedule for the maintenance of an individual transit vehicle. The identity of the vehicle is stored in a separate data flow. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_maintenance_schedule_date
+ transit_vehicle_maintenance_schedule_mileage
+ transit_vehicle_maintenance_schedule_activity

transit_vehicle_maintenance_schedule_activity
This data flow contains a brief description of the maintenance activity that is to be carried out on a transit vehicle, either when it achieves a particular mileage, or an a particular date. Both mileage and date will be measured from the date of the vehicle's manufacture and are stored in separate data flows within the store of the maintenance schedules.

transit_vehicle_maintenance_schedule_data
This data flow is used within the Manage Transit function and contains the schedule for the maintenance of an individual transit vehicle.

transit_vehicle_maintenance_schedule_date
This data flow is used within the Manage Transit function. It contains the date on which maintenance activity must take place on a transit vehicle. This date will be related to the date of manufacture of the vehicle and will ensure that if the vehicle covers no more than the expected number of miles it will be serviced on particular dates. Vehicles exceeding the expected mileage will be serviced on a miles covered basis, which is stored in a separate data flow within the store of the maintenance schedules. The data flow consists of the following data item which is defined in its own DDE:

date

transit_vehicle_maintenance_schedule_mileage
This data flow contains the mileage at which maintenance activity must take place on a transit vehicle. This will be the number of miles that the vehicle has covered since manufacture and will ensure that if is regularly maintained if its mileage exceeds that which is expected. Those vehicles covering no more than the expected mileage will be serviced on particular dates, which are defined in a separate data flow within the store of maintenance schedules.

transit_vehicle_maintenance_specs
This data flow is used within the Manage Transit function and contains the maintenance specifications for individual transit vehicles by type and identity. It is used by processes within the Manage Transit function and contains the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_vehicle_type
+ transit_vehicle_maintenance_details

transit_vehicle_maintenance_specs_update
This data flow is used within the Manage Transit function. It contains updated transit vehicle maintenance specifications and vehicle maintenance data. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_vehicle_maintenance_specs

transit_vehicle_maintenance_verification_results
This data flow is used within the Manage Transit function and contains verification that maintenance of a transit vehicle has been successfully completed. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ transit_technician_identity
+ transit_technician_work_assignment
+ transit_vehicle_identity

transit_vehicle_maintenance_work
This data flow contains information on the maintenance work to be carried out an a transit vehicle. These will include but not be limited to change engine oil, change engine cooling water, add anti-freeze to engine cooling water, check transit vehicle operator's windshield washer system and top up if necessary, check engine fluid levels and top up if necessary, check vehicle battery levels and top up if necessary, check vehicle brakes and replace pads and/or top up fluid levels if necessary, carry out maintenance based on vehicle mileage, clean external of vehicle, clean interior of vehicle, check transmission state and top up fluid levels if necessary, and check vehicle running equipment (springs, dampers, muffler, etc.).

transit_vehicle_mileage_accumulated
This data flow contains the total mileage accumulated by a transit vehicle.

transit_vehicle_off_route_indication
This data flow is used by processes within the Manage Transit function and sent to a process in the Emergency Services function. It contains information that indicates, after analysis, that a transit vehicle is not in its planned location on its assigned route. The ETA of the transit vehicle along the assigned route indicates its planned location. This data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_eta
+ transit_vehicle_location

transit_vehicle_on_board_data
This data flow is used within the Manage Transit function and contains data from systems operating on-board the transit vehicle. An example of the type of data provided is passenger doors open or closed.

transit_vehicle_operating_condition
This data flow is used by processes within the Manage Transit function and contains the status of transit vehicle's drive-line, e.g. fuel levels, fuel consumption, high temperature, low oil pressure, etc., plus other operating conditions such as brake wear, internal lighting failures, incorrect operation of the environmental control unit, etc.

transit_vehicle_operating_data
This data store is used within the Manage Transit function and contains information collected from each transit vehicle in the fleet operated by the function about the way in which it is operating. It consists of the following data items each of which is defined in its own DDE:

list_size{transit_vehicle_eta
+ transit_vehicle_collected_maintenance_data
+ transit_vehicle_passenger_loading
+ transit_vehicle_running_times
+ transit_vehicle_deviation_update
+ transit_vehicle_location
+ transit_vehicle_schedule_deviations
+ transit_vehicle_off_route_indication
+ transit_service_status}

transit_vehicle_operational_data
This data flow is used within the Manage Transit function and contains operational data collected from transit vehicles while in service. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_availability
+ transit_vehicle_data
+ transit_vehicle_passenger_data}

transit_vehicle_operations_data
This data store is used within the Manage Transit function. It contains maintenance and other information about transit vehicles for use by processes within the schedule transit vehicle maintenance facility. The data store consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_identity
+ transit_vehicle_operations_details}

transit_vehicle_operations_data_for_inventory

This data flow contains the contents of the operations data about each of the vehicles owned by the agency and a report of their maintenance history and condition. This flow consists of the following items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity + transit_vehicle_operations_details}

transit_vehicle_operations_details

This data flow is used within the Manage Transit function. It contains information about the maintenance of a transit vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_maintenance_specs
+ transit_vehicle_maintenance_log
+ transit_vehicle_maintenance_schedule
+ transit_vehicle_maintenance

transit_vehicle_operator_assignment

This data flow is used within the Manage Transit function and contains the assignment of routes to transit vehicle operators. The flow consists of the following data items each of which is defined in its own DDE:

list_size{transit_vehicle_identity + transit_vehicle_operator_identity + transit_vehicle_availability}

transit_vehicle_operator_authentication

This data flow is used by processes within the Manage Transit function. It contains the status of the transit vehicle operator authentication to the transit vehicle when he attempts to logon to the vehicle. This data flow is a response to the request to authenticate the operator via the Transit Management Center. This data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_location
+ transit_vehicle_identity
+ transit_vehicle_operator_identity
+ confirmation_flag

transit_vehicle_operator_authentication_database_update

This data flow contains updates to the transit vehicle operator authentication database on-board a transit vehicle. It also contains a request for database information from the on-board authentication database.

transit_vehicle_operator_authentication_status

This data flow is used by processes within the Manage Transit function. It contains the status of the transit vehicle operator authentication to the transit vehicle when he attempts to logon to the vehicle. This data flow is a response to the operator authentication being done on-board the transit vehicle (as opposed to at the Transit Management Center). This data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_location
+ transit_vehicle_identity
+ transit_vehicle_operator_identity
+ confirmation_flag

transit_vehicle_operator_availability

This data flow is used within the Manage Transit function and contains information that represents the transit vehicle operator's current, future hourly, daily weekly and monthly calendar availability. The data will be stored for future access by the transit system operator.

transit_vehicle_operator_availability_considerations

This data flow is used within the Manage Transit function and contains information that is used in assessing the transit vehicle operator's availability for work. It will comprise details of such things as the operator's vacation status, health status, accumulated work hours, and any laws and policies that will affect the operator. The data is used in assessing the operator's eligibility for future work assignments.

transit_vehicle_operator_availability_data

This data flow is used within the Manage Transit function and contains information that represents the transit vehicle operator's current, future hourly, daily weekly and monthly calendar availability. The data will be used in the assessment of the operator's eligibility for future work assignments.

transit_vehicle_operator_consideration_updates

This data flow is used within the Manage Transit function and contains updates to the consideration data used to assess a operator's availability for future work, that have been provided by the transit system operator. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_operator_identity
+ transit_vehicle_operator_cost_effectiveness_considerations
+ transit_vehicle_operator_eligibility_considerations
+ transit_vehicle_operator_performance_considerations
+ transit_vehicle_operator_route_assignment_considerations

transit_vehicle_operator_cost_effectiveness

This data flow is used within the Manage Transit function and contains the transit vehicle operator's cost effectiveness and is used primarily to reduce overtime pay and to assign higher paid operators to the more demanding route assignments. The data will be stored for future access by the transit system operator.

transit_vehicle_operator_cost_effectiveness_considerations

This data flow is used within the Manage Transit function and contains information that is used in assessing the transit vehicle operator's cost effectiveness. It will contain such things as the operator's accumulated work hours, and hourly wage. The data is used in assessing the operator's eligibility for future work assignments.

transit_vehicle_operator_cost_effectiveness_data

This data flow is used within the Manage Transit function and contains the transit vehicle operator's cost effectiveness and is used primarily to reduce overtime pay and to assign higher paid operators to the more demanding route assignments. The data will be used in the assessment of the operator's eligibility for future work assignments.

transit_vehicle_operator_data_for_archive

This data flow is used within the Manage Transit function. It contains data about transit vehicle operators and their route assignments. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_operator_info_for_archive
+ transit_route_assign_for_archive

transit_vehicle_operator_details

This data flow is used within the Manage Transit function and contains data about an individual transit vehicle operator. The data is used to assess the operator's eligibility for future work assignments and as a source of data about operators for the transit system operator. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_operator_identity
+ transit_vehicle_operator_availability_considerations
+ transit_vehicle_operator_availability
+ transit_vehicle_operator_cost_effectiveness_considerations
+ transit_vehicle_operator_cost_effectiveness
+ transit_vehicle_operator_eligibility_considerations
+ transit_vehicle_operator_eligibility
+ transit_vehicle_operator_performance_considerations
+ transit_vehicle_operator_performance
+ transit_vehicle_operator_route_details
+ transit_vehicle_operator_route_assignment_considerations

transit_vehicle_operator_eligibility

This data flow is used within the Manage Transit function and contains the transit vehicle operator's eligibility to perform a route assignments. The data will be stored for future access by the transit system operator.

transit_vehicle_operator_eligibility_considerations

This data flow is used within the Manage Transit function and contains information that is used in assessing the transit vehicle operator's eligibility. It will contain such things as a list of operator certifications, experience, and education. The data is used in assessing the operator's eligibility for future work assignments.

transit_vehicle_operator_eligibility_data

This data flow is used within the Manage Transit function and contains the transit vehicle operator's eligibility to perform a route assignment. The data will be used in the allocation of future work assignments for the operator.

transit_vehicle_operator_identity

This data flow is used within the Manage Transit function and contains the identity of an individual transit vehicle operator. It is used by processes in the Manage Transit function that authenticate operators and allocate work assignments to operators.

transit_vehicle_operator_info_for_archive

This data flow is used within the Manage Transit function. It contains data from the store of transit vehicle operator information that has been previously requested by the transit system operator and may relate to one or more of the transit vehicle operators. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_operator_details}

transit_vehicle_operator_information

This data store is used within the Manage Transit function and contains data about the transit vehicle operators. The data is used to allocate future work assignments to operators. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_operator_details + transit_route_assign_for_archive}

transit_vehicle_operator_information_output

This data flow is used within the Manage Transit function. It contains data from the store of transit vehicle operator information

that has been previously requested by the transit system operator and may relate to one or more of the transit vehicle operators. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_operator_details}

transit_vehicle_operator_information_output_request
This data flow is used within the Manage Transit function to request output of the information currently stored about one or more transit vehicle operators. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_operator_identity}

transit_vehicle_operator_performance
This data flow is used within the Manage Transit function and contains a transit vehicle operator's past and current route assignment performance. The data will be stored for future access by the transit system operator.

transit_vehicle_operator_performance_considerations
This data flow is used within the Manage Transit function and contains information that is used in assessing a transit vehicle operator's performance in carrying out previously assigned work. It will contain such things as details of any moving violations and accidents in which the operator has been involved, plus comments from supervisors on the operator's performance. The data will be used in deciding the allocation of future work to the operator.

transit_vehicle_operator_performance_data
This data flow is used within the Manage Transit function and contains a transit vehicle operator's past and current route assignment performance. The data will be used in the assessment of the operator's eligibility for future work assignments.

transit_vehicle_operator_personal_emergency_request
This data flow is used to carry data about an emergency situation that applies to a transit vehicle operator. It contains the following data items each of which is defined in its own DDE:

transit_vehicle_operator_identity
+ transit_vehicle_location

transit_vehicle_operator_route_assignment_considerations
This data flow is used within the Manage Transit function and contains information that is used in making operator route assignments. It will contain such things as details of any operator route preferences and the operator's seniority. The data will be used in deciding the allocation of future work to the operator.

transit_vehicle_operator_route_data
This data store is used within the Manage Transit function to store data that is used in the assignment of new routes to transit vehicle operators. The data is provided by other processes within the function. The store consists of the following data items each of which is defined in its own DDE:

paratransit_services_for_transit_vehicle_operators
+ transit_services_for_transit_vehicle_operators
+ list_size
+ list_size{transit_vehicle_identity
    + transit_vehicle_availability}

transit_vehicle_operator_route_details
This data flow is used within the Manage Transit function and contains the assignment of the transit vehicle operator to a previous transit route and schedule. This data will be used to provide the operator with new work assignments.

transit_vehicle_operator_wide_area_alerts
This data flow is used to provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction information to be sent to a transit vehicle operator. The data flow consists of the following data item which is defined in its own DDE:

wide_area_alert_notification_for_transit

transit_vehicle_passenger_capacity
This data flow is used within the Manage Transit function and defines the number of passengers that can be carried by a particular transit vehicle.

transit_vehicle_passenger_data
This data flow is used within the Manage Transit function and contains transit vehicle fare collection data from all the transit fare transactions that have been processed on the vehicle as a result of travelers coming on-board. It is derived from on-board vehicle fare collection data and may be used for calculating future transit schedules. It consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_route_segment_number
+ transit_route_use_time

+ traveler_category
+ transit_vehicle_identity
+ transit_vehicle_fare_collection_data

transit_vehicle_passenger_loading

This data flow is used by processes within the Manage Transit function and contains the number of passengers (users of the transit system) carried by a transit vehicle on each part of its route, i.e. each transit route segment. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_route_number
+ list_size
+ list_size{transit_route_segment_number + transit_vehicle_passengers}

transit_vehicle_passenger_operational_data

This data flow is used within the Manage Transit function and contains the number of passengers carried by a transit vehicle while in service. It is derived from the numbers of passengers on the vehicle for each transit route segment as counted by on-board vehicle sensors. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_route_segment_number + transit_vehicle_passengers}

transit_vehicle_passengers

This data flow contains a count of the number of passengers (users of the transit system) that were on-board a transit vehicle on a particular transit route segment. This data is measured by counting the numbers of travelers that enter and leave the vehicle at each transit stop, and is determined independently of any transit fare collection process.

transit_vehicle_pedestrian_priority

This data flow contains data necessary for a transit vehicle to be given priority at an indicator that is a particular set of pedestrian signals. The data flow is sent directly from the transit vehicle to the pedestrian controller, which is assumed to be capable of giving priority to the correct phase.

transit_vehicle_ramp_priority

This data flow is sent from the Manage Transit function to the Manage Traffic function and contains the data necessary for a transit vehicle to be given priority at an indicator that is a particular set of highway entry ramp control signals. The data flow is sent directly from the transit vehicle to the ramp controller, which is assumed to be capable of giving priority to the correct ramp or lane if multiple ramps or lanes are involved.

transit_vehicle_reassignment_request

This data flow is used within Manage Transit to request another transit vehicle - either to support additional capacity, special events, or a vehicle that is now out-of-service.

transit_vehicle_roadway_priorities

This data flow is sent from the Manage Transit function to the Manage Traffic function and contains data necessary for an individual transit vehicle to be given priority at traffic signal controllers. This will be at the controller for a particular road intersection, pedestrian crossing, or highway entrance ramp. The data is sent directly from the transit vehicle to the next controller along its route and therefore is not subject to any centralized coordination. Local coordination may be provided if there are links between adjacent controllers. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_intersection_priority
+ transit_vehicle_pedestrian_priority
+ transit_vehicle_ramp_priority
+ transit_vehicle_sign_priority

transit_vehicle_running_times

This data flow is used within the Manage Transit function. It contains the time at which it is expected that a transit vehicle will reach the end of each transit route segment on its route and is used to determine any schedule deviations. The end of a transit route segment is usually a transit stop and the data is thus the expected arrival time of a transit vehicle at each of the transit stop(s) along the transit route. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ list_size
+ list_size{transit_route_segment_number
    + transit_stop_scheduled_time}

transit_vehicle_schedule_deviation

This data flow is used within the Manage Transit function and contains the deviation of a transit vehicle from its published schedule.

transit_vehicle_schedule_deviations

This data flow is sent from the Manage Transit function to processes in the Provide Driver and Traveler Services function. It contains the deviations of transit vehicles from their published routes and schedules at transit route segments that have already been completed, i.e. at transit stops that have been passed by the vehicle. The data is used to provide information about the current state of the transit service operation to a traveler, and consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_identity
    + transit_vehicle_achieved_time
    + transit_route_number
    + transit_route_segment_number}

transit_vehicle_sensor_control

This data flow contains control parameters for sensors located on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

vehicle_threat_sensor_control
+ vehicle_object_detection_sensor_control

transit_vehicle_sensor_data

This data flow contains the direct output of sensors as well as the processed output of sensors located on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

vehicle_threat_sensor_data
+ field_processed_vehicle_threat_sensor_data
+ vehicle_object_detection_sensor_data
+ field_processed_vehicle_object_detection_sensor_data
+ transit_vehicle_location_for_sensors

transit_vehicle_sensor_status

This data flow contains the status of sensors located on-board a transit vehicle and includes of the configuration of the device and an indication of any device faults. It consists of the following data items each of which is defined in its own DDE:

vehicle_threat_sensor_status
+ vehicle_object_detection_sensor_status

transit_vehicle_service_enable

This data flow is used within the Manage Transit function to enable a transit vehicle for service, including the vehicle's assigned schedule and operator. This data flow is made up of the following items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_schedule_data
+ transit_vehicle_operator_identity

transit_vehicle_service_update

This data flow is used within the Manage Transit function to provide an indication of when a vehicle has entered or exited from a transit facility. This data flow is made up of the following items each of which is defined in its own DDE:

transit_vehicle_location
+ transit_vehicle_time

transit_vehicle_sign_priority

This data flow is sent from the Manage Transit function to the Manage Traffic function and contains data necessary for a transit vehicle to have a message output giving it priority at an indicator that is a particular dynamic message sign (DMS) or fixed message sign that has a transit priority message that can be displayed. The data flow is sent directly from the transit vehicle to the sign controller and may consist of either a single character that will enable the sign controller to output the correct message from its list of known messages, or a string of characters for a controller driving a DMS.

transit_vehicle_status

This data flow is used to pass information about the transit vehicle to the maintenance facility and contains data and operational status of the sensors that has been collected and processed by sensors on-board the vehicle. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_collected_maintenance_data
+ transit_vehicle_identity
+ transit_vehicle_location

transit_vehicle_status_for_signing

This data flow is used to convey transit vehicle status information from vehicle operators out to nearby equipped personal vehicles. This could include whether the vehicle is loading passengers or attempting to re-enter the travel lanes.

transit_vehicle_surveillance

This data flow is used within the Manage Emergency Services function and contains the direct video and audio output of surveillance equipment as well as the processed output located on-board a transit vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_secure_area_images
+ field_processed_vehicle_secure_area_images
+ vehicle_secure_area_audio
+ field_processed_vehicle_secure_area_audio

+ transit_vehicle_location_for_surveillance_and_security

transit_vehicle_threat_data

This data flow contains the threat data including threats detected, threshold alarms, and verified threats on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

vehicle_secure_area_sensor_threat_data
+ vehicle_secure_area_surveillance_threat_data

transit_vehicle_time

This data flow is used within the Manage Transit function. It contains the estimated time of arrival of a transit vehicle at the end of the next transit route segment not so far reached during its journey along the transit route. The end of a transit route segment is usually a transit stop and the data is thus the estimated arrival time of a transit vehicle at each of the remaining transit stop(s) along the transit route. The identity of the transit route segment to which this data applies is carried in an accompanying data flow.

transit_vehicle_type

This data flow identifies transit vehicles by their type and is used by processes within the Manage Transit function. Examples of transit vehicle types include, but are not limited to: articulated motor buses, cable cars, double-decked buses, ferryboats, light rail vehicles (streetcars), monorail vehicles, commuter rail locomotives (plus passenger coaches and self-propelled passenger cars), school buses, trolley buses, vans, revenue vehicles (25', 30', 40'), articulated vehicles, tow truck, shelter service truck. These examples appear in the National Transit Database.

transit_vehicle_user_data

This data flow is used within the Manage Transit function and contains data about a transit vehicle for automatic output to traveler at transit stops. The data is output at the transit stop as the vehicle approaches and contains information about the vehicle such as the route number. It therefore consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_vehicle_time

transit_wide_area_alert_info

This data flow is used to provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction information to be displayed at transit stops. The data flow consists of the following data item which is defined in its own DDE:

wide_area_alert_notification_for_transit

transp_information_for_emerg_operators

This data flow contains traveler information to be transmitted to personnel at emergency operations centers, including traffic and road conditions, advisories, incidents, transit services, weather information, parking information and other related data. This data flow consists of the following item which is defined in its own DDE:

transportation_information_for_emerg_operations

transportation_information_for_disaster_operations

This data flow contains traveler information to be transmitted to emergency operations centers to support disaster response, including traffic and road conditions, advisories, incidents, transit services, weather information, parking information, border crossing information, and other related data. It consists of the following data items each of which is defined in its own DDE:

traffic_data_for_centers
+ transit_data_for_centers
+ multimodal_data_for_centers
+ price_data_for_centers
+ emergency_data_for_centers
+ weather_data_for_centers
+ event_information_for_centers
+ parking_data_for_centers
+ border_data_for_centers

transportation_information_for_emerg_operations

This data flow contains traveler information to be transmitted to emergency operations centers, including traffic and road conditions, advisories, incidents, transit services, weather information, parking information, border crossing information, and other related data. It consists of the following data items each of which is defined in its own DDE:

traffic_data_for_centers
+ transit_data_for_centers
+ multimodal_data_for_centers
+ price_data_for_centers
+ emergency_data_for_centers
+ weather_data_for_centers
+ event_information_for_centers
+ parking_data_for_centers
+ border_data_for_centers

transportation_information_for_emerg_routing

This data flow contains traveler information to support the routing of emergency vehicles, including traffic and road conditions, advisories, incidents, transit services, weather information, parking information, border crossing information, and other related data. This data flow consists of the following items each of which is defined its own DDE:

traffic_data_for_centers
+ transit_data_for_centers
+ multimodal_data_for_centers
+ price_data_for_centers
+ emergency_data_for_centers
+ weather_data_for_centers
+ event_information_for_centers
+ parking_data_for_centers
+ border_data_for_centers

transportation_information_for_evac_operations

This data flow contains traveler information to be transmitted to emergency operations centers to support evacuation response, including traffic and road conditions, advisories, incidents, transit services, weather information, parking information, border crossing information, and other related data. It consists of the following data items each of which is defined in its own DDE:

traffic_data_for_centers
+ transit_data_for_centers
+ multimodal_data_for_centers
+ price_data_for_centers
+ emergency_data_for_centers
+ weather_data_for_centers
+ event_information_for_centers
+ parking_data_for_centers
+ border_data_for_centers

transportation_information_for_maint_operations

This data flow contains traveler information to be transmitted to maintenance and construction operations centers, including traffic and road conditions, advisories, incidents, transit services, weather information, parking information, border crossing information, and other related data. It consists of the following data items each of which is defined in its own DDE:

traffic_data_for_centers
+ transit_data_for_centers
+ multimodal_data_for_centers
+ price_data_for_centers
+ emergency_data_for_centers
+ weather_data_for_centers
+ event_information_for_centers
+ parking_data_for_centers
+ border_data_for_centers

transportation_information_for_traffic_operations

This data flow contains traveler information to be transmitted to traffic operations centers, including traffic and road conditions, advisories, incidents, transit services, weather information, parking information, border crossing information, and other related data. It consists of the following data items each of which is defined in its own DDE:

traffic_data_for_centers
+ transit_data_for_centers
+ multimodal_data_for_centers
+ price_data_for_centers
+ emergency_data_for_centers
+ weather_data_for_centers
+ event_information_for_centers
+ parking_data_for_centers
+ border_data_for_centers

transportation_information_for_transit_operations

This data flow contains traveler information to be transmitted to transit operations centers, including traffic and road conditions, advisories, incidents, transit services, weather information, parking information, border crossing information, and other related data. It consists of the following data items each of which is defined in its own DDE:

traffic_data_for_centers
+ transit_data_for_centers
+ multimodal_data_for_centers
+ price_data_for_centers
+ emergency_data_for_centers
+ weather_data_for_centers
+ event_information_for_centers
+ border_data_for_centers
+ parking_data_for_centers

transportation_system_status_to_isp

This data flow is used to communicate the general status of the transportation system to maintenance and construction during a disaster or evacuation. The data flow consists of the following data items each of which are defined in their own DDE:

disaster_transportation_system_status_for_isp
+ evacuation_transportation_system_status_for_isp

transportation_system_status_to_m_and_c

This data flow is used to communicate the general status of the transportation system to maintenance and construction during a disaster or evacuation. The data flow consists of the following data items each of which are defined in their own DDE:

m_and_c_transportation_system_status_for_disaster
+ m_and_c_transportation_system_status_for_evacuation

trav_info_equip_status_for_isp_operator

This data flow provides the operational status (state of the device, configuration, and fault data) of short range communications field equipment. By monitoring this data flow, the receiving process can assess the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{station_id
+ device_identity + roadside_device_status}

trav_info_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of short range communications field equipment to the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can assess the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{station_id
+ device_identity
+ roadside_device_status}

trav_info_svc_requests_to_isp_data_collectors

This data flow is sent from the Provide Traveler Information Services function to the Collect ISP Services Data function. It contains the following data items each of which is defined in its own DDE:

travel_services_update_request
+ traffic_data_request_from_interactive
+ transit_data_request_from_interactive
+ incident_information_request_from_interactive
+ weather_data_request_from_interactive
+ event_information_request_from_interactive
+ parking_data_request_from_interactive
+ multimodal_data_request_from_interactive
+ request_traveler_service_map_update
+ border_data_request_for_alerts
+ event_information_request_for_alerts
+ incident_information_request_for_alerts
+ multimodal_data_request_for_alerts
+ parking_data_request_for_alerts
+ traffic_data_request_for_alerts
+ transit_data_request_for_alerts
+ weather_data_request_for_alerts

travel_services_availability

This data flow is used within the Provide Driver and Traveler Services function and contains a character code that is used to define what is actually available from the external travel service that is being provided. This may be a number of rooms at a hotel, the number of seats at a theater or restaurant, or none if they are all sold, a range of services provided by a garage, a list of codes for attractions at a tourist site or special event, a list of available non-motorized transportation service providers, etc.

travel_services_contact

This data flow is used to define the telephone, fax or e-mail contact information for the travel service that is being provided. The data will also include the type of service provided.

travel_services_cost

This data flow is used within the Provide Driver and Traveler Services function and contains the cost of an associated external travel service which is currently available. It consists of the following data item which is defined in its own DDE:

cost

travel_services_data

This data flow is used within the Provide Driver and Traveler Services function to provide information on other travel services that are currently available to the traveler. It consists of the following data items each of which is defined in its own DDE:

travel_services_general_information
+ travel_services_specific_information
+ travel_services_transaction_information

travel_services_data_for_travel_services

This data flow is used within the Provide Driver and Traveler Services function to answer the request for travel services information It consists of the following data item which is defined in its own DDE:

travel_services_data

travel_services_data_parameters

This data contains parameters to be used to govern processing and dissemination of travel services type of traveler information and services to kiosks, personal devices, in-vehicle units and telecommunications-based traveler information systems.

travel_services_data_request

This data flow is used within the Provide Driver and Traveler Services function and is used to request the Process Travel Service Provider Data facility to provide data on other travel services.

travel_services_date

This data flow is used within the Provide Driver and Traveler Services function and contains the date on which an associated external travel service will be available. It consists of the following data item which is defined in its own DDE:

date

travel_services_description

This data flow is used within the Provide Driver and Traveler Services function and describes the travel service that is being provided. This may be the name of a hotel, theater or concert hall, the address of a sports stadium, the address of a garage, the address of a non-motorized transportation service provider (e.g. bike rental shop), etc.

travel_services_detail

This data flow is used within the Provide Driver and traveler Services function. It contains details of the providers of those services of whatever type that are relevant to a traveler's current location. The data flow consists of the following data items each of which is defined in its own DDE:

travel_services_type
+ travel_services_contact
+ travel_services_cost
+ travel_services_date
+ travel_services_description
+ travel_services_location
+ travel_services_time
+ travel_services_availability

travel_services_dining_information

This data flow is used within the Provide Driver and Traveler Services function and contains details of those restaurants, diners, etc. in the area served by the function, with dates and prices of available seats, the type of restaurant, diner, etc., the name of the chain (if applicable), and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_detail}

travel_services_dining_reservation

This data flow is used within the Provide Driver and Traveler Services function and contains a request for the information and service providers to make a dining reservation at a restaurant, hotel, etc. The reservation will be based on the data already provided to the traveler through a previous request.

travel_services_dining_reservation_confirmation

This data flow is used within the Provide Driver and Traveler Services function. It contains a massage to say that a dining reservation is confirmed and includes a confirmation number. The data flow consists of the following items each of which is defined in its own DDE:

confirmation_flag
+ travel_services_reservation_number

travel_services_emergency_update

This data flow is used within the Provide Driver and Traveler Services function and contains updates to information on external travel services as situations change during an emergency - adjustments to availability of services, changes in hours, etc.

travel_services_food

This data flow is used within the Provide Driver and Traveler Services function and contains details of restaurants, fast food outlets, etc. in the area served by the function, including the type of food and the chain (if applicable) and the address. The data

flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_type
+ travel_services_contact
+ travel_services_description
+ travel_services_location}

travel_services_gas_stations

This data flow is used within the Provide Driver and Traveler Services function and contains details of gas stations in the area served by the function, including the facilities available at the gas station, e.g. toilets, shop, food, the type(s) of fuel supplied, and the gas supplier chain(s) and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_type
+ travel_services_contact
+ travel_services_description
+ travel_services_location}

travel_services_general_information

This data flow is part of the Provide Driver and Traveler Services function. It contains the following items the contents of which will be specific to the area covered by the function and which will include contact telephone numbers, etc. Each of them is defined in its own DDE:

travel_services_history
+ travel_services_local_customs
+ travel_services_people

travel_services_history

This data flow is used within the Provide Driver and Traveler Services function and contains details of any sites of historic or cultural interest in the area served by the function. The data will define the type of site, e.g. Civil War battle site, and the description, including the address of the site. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_type
+ travel_services_contact
+ travel_services_description
+ travel_services_location
+ travel_services_time}

travel_services_hospitals

This data flow is used within the Provide Driver and Traveler Services function and contains details of location(s), available facilities and visiting hours of hospitals by type, e.g. general human, human specialty (eye, skin, maternity, etc.), or veterinary, in the area served by the function. The data will include the type of hospital and the opening times and visiting hours plus the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_type
+ travel_services_contact
+ travel_services_description
+ travel_services_location}

travel_services_local_customs

This data flow is used within the Provide Driver and Traveler Services function and contains details of local customs, etc., in the area served by the function. It describes the customs themselves, e.g., the days on which shops close early, etc., as well as the location to apply to selected part(s) of the served area. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_type
+ travel_services_description
+ travel_services_location}

travel_services_location

This data flow is used within the Provide Driver and Traveler Services function and contains the geographic location at which an associated travel service will be available. It consists of the following data item which is defined in its own DDE:

location_identity

travel_services_lodging

This data flow is used within the Provide Driver and Traveler Services function and contains details of hotels, motels, etc. in the area served by the function, including the type of hotel and the hotel chain (if applicable) and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_type
+ travel_services_contact
+ travel_services_description
+ travel_services_location}

travel_services_lodging_information

This data flow is used within the Provide Driver and Traveler Services function and contains details of those hotels, motels, etc. in the area served by the function, with dates and prices of available rooms, the type of hotel, the description of the hotel chain (if applicable) and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_detail}

travel_services_lodging_reservation

This data flow is used within the Provide Driver and Traveler Services function and contains a request for the external travel services providers to make a lodging reservation at a hotel or motel etc. from the information already provided to the traveler through a previous request.

travel_services_lodging_reservation_confirmation

This data flow is used within the Provide Driver and Traveler Services function. It contains a massage to say that a lodging reservation is confirmed and includes a confirmation number. The data flow consists of the following items each of which is defined in its own DDE:

confirmation_flag
+ travel_services_reservation_number

travel_services_new_data_request

This data flow is used within the Provide Driver and Traveler Services function and shows that a new information service provider, or other travel service provider, has been successfully registered and can be used as a source of travel services data. It includes the following data item which is defined in its own DDE:

travel_services_provider_identity

travel_services_non_motorized_services

This data flow is used within the Provide Driver and Traveler Services function and contains details of non-motorized transportation services in the area served by the function. Detail may include the type of repair shop, the type(s) of repair facilities that are available, e.g. general servicing, tires, etc. and the repair shop chain (if applicable) and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_type
+ travel_services_contact
+ travel_services_description
+ travel_services_location}

travel_services_non-motorized_reservation

This data flow is used within the Provide Driver and Traveler Services function and contains a request for the information and service providers to make a reservation for a special non-motorized transportation service (e.g. bike rental) from the information already provided to the traveler through a previous request.

travel_services_parking

This data flow is used within the Provide Driver and Traveler Services function and contains details of parking lots, on-street parking arrangements, etc. in the area served by the function, including the type parking, e.g. privately managed lot, municipally owned lot, free parking, on-street parking, etc. and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_type
+ travel_services_contact
+ travel_services_description
+ travel_services_location}

travel_services_people

This data flow is used within the Provide Driver and Traveler Services function and contains details of important local people, such as the mayor or chief of police, in the area served by the function. This will define the type of person and describe the part(s) of the area served and the address of the person's office. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_type
+ travel_services_contact
+ travel_services_description
+ travel_services_location}

travel_services_private_vehicle_parts_shops

This data flow is used within the Provide Driver and Traveler Services function and contains details of vehicle parts shops in the area served by the function, including character code will define the type of vehicle parts available, e.g. engines, brakes, tires, mufflers, etc. and the repair shop chain (if applicable) and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_type
+ travel_services_contact

+ travel_services_description
+ travel_services_location}

travel_services_private_vehicle_repair_shops

This data flow is used within the Provide Driver and Traveler Services function and contains details of repair shops in the area served by the function, including the type of repair shop, the type(s) of repair facilities that are available, e.g. general servicing, engines, brakes, tires, mufflers, etc. and the repair shop chain (if applicable) and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_type
+ travel_services_contact
+ travel_services_description
+ travel_services_location}

travel_services_provider_area

This data flow contains a list of the geographic area(s) served by an individual travel services provider.

travel_services_provider_attributes

This data flow contains the details of the services that are provided by an individual travel services provider. Examples of the information that could be used to represent but are not limited to are theaters, concerts, restaurants, car gas stations, truck/van (diesel) gas stations, car repair shops, truck repair shops, hospitals, veterinary services specializing in domestic animals, veterinary services specializing in farm type animals.

travel_services_provider_contact

This data flow contains the details of how to contact (send data to, obtain information from) an individual travel services provider. The data flow enables information such as address, plus telephone and fax numbers, e-mail address, and world wide web page address to be included.

travel_services_provider_data

This data store contains detailed data about individual travel services providers. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_provider_details
+ travel_services_provider_identity}

travel_services_provider_data_for_data_collector

This data flow contains detailed data about individual travel service providers. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_provider_details
+ travel_services_provider_identity}

travel_services_provider_data_request

This data flow is used within the Provide Driver and Traveler Services function and is used to request the Process Travel Services Provider Data facility to provide data on other types of travel services.

travel_services_provider_details

This data flow is used within the Provide Driver and Traveler Services function and contains data about individual travel services providers. This data includes the provider name, contact details, scope of the geographic area for which it can provide data and the actual services that it can provide. The data flow consists of the following data items each of which is defined in its own DDE:

travel_services_provider_name
+ travel_services_provider_contact
+ travel_services_provider_attributes
+ travel_services_provider_area

travel_services_provider_identity

This data flow contains the identity of a travel services provider. It enables a unique identifier to be applied, as for other identities used for such things as vehicles, drivers, travelers, etc.

travel_services_provider_info

This data flow is sent from the Provide Traveler Information Services function to the Collect ISP Services Data function carrying information from travel services providers and requests for updated information. It contains the following data items each of which is defined in its own DDE:

travel_services_provider_data_for_data_collector
+ travel_services_new_data_request

travel_services_provider_name

This data flow contains the name of an individual travel services provider. The data flow enables the name to be accommodated without any abbreviations.

travel_services_provider_registration_request

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services

function and contains the request for payment of the registration fee for an information and service provider, or other information and service provider, to supply travel services data to another process in the Provide Driver and Traveler Services function. The data flow contains the following data item which is defined in its own DDE:

credit_identity
+ travel_services_provider_identity

travel_services_provider_registration_response

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function and contains the response to a previous request for payment of the registration fee for a travel services provider to supply travel services data to the Provide Driver and Traveler Services function. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ travel_services_provider_identity

travel_services_requested

This data flow is used within the Provide Driver and Traveler Services function and contains data input by the traveler to make reservations - including those that involve payment - for various other types of travel services. This data flow includes the date/time/duration for which the service is being requested to help the service provider determine the payment required. It contains the following items each of which is defined in its own DDE:

date
+ duration
+ time

travel_services_requests_attributes

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data attribute information to the data archive about the requests for travel services information. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

travel_services_requests_for_archive

This data flow is used within the Provide Driver and Traveler Services function to provide data to the data archive about requests for reservations or data to be returned to the traveler for various other travel services via a personal device, vehicle, kiosk or telephone/telecommunications-based information system. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{traveler_personal_transaction_request
+ traveler_transaction_request
+ vehicle_transaction_request
+ traveler_personal_travel_services_data_request
+ traveler_travel_services_data_request
+ vehicle_travel_services_data_request
+ traveler_telecomm_travel_services_data_request}

travel_services_reservation_number

This data flow contains the confirmation number for a travel services reservation. The data flow enables a unique number to be given to each and every reservation bearing in mind the possibility that some time (months) may elapse before it expires.

travel_services_rest_areas

This data flow is used within the Provide Driver and Traveler Services function and contains details of rest areas adjacent to roads

and highways in the area served by the function, including the facilities available at the rest area, e.g. toilets, food, etc. and any private operators that provide on-site services and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_type
+ travel_services_contact
+ travel_services_description
+ travel_services_location}

travel_services_special_events

This data flow is used within the Provide Driver and Traveler Services function and contains details of special events such as parades, fairs, exhibitions, conventions, etc. in the area served by the function. Details may include the type of event and the organizer(s) and address at which the event will take place. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_type
+ travel_services_contact
+ travel_services_description
+ travel_services_location}

travel_services_specific_information

This data flow is used within the Provide Driver and Traveler Services function. It contains information which will be specific to the area covered by the function and which will include details of what facilities are currently available for purchase, etc. The data flow consists of the following items each of which is defined in its own DDE:

travel_services_food
+ travel_services_gas_stations
+ travel_services_hospitals
+ travel_services_lodging
+ travel_services_private_vehicle_repair_shops
+ travel_services_private_vehicle_parts_shops
+ travel_services_parking
+ travel_services_rest_areas
+ travel_services_special_events
+ travel_services_tourist_activities
+ travel_services_tourist_services
+ travel_services_non_motorized_services
+ travel_services_emergency_update

travel_services_ticket_information

This data flow is used within the Provide Driver and Traveler Services function and contains details of those activities, services etc., for which tickets are required in the area served by the function, with dates and prices, the type of activity or service, and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_detail}

travel_services_ticket_purchase

This data flow is used within the Provide Driver and Traveler Services function and contains a request for the information and service providers to make a ticket purchase for a special event, theater, tourist attraction, etc. from the information already provided to the traveler through a previous request.

travel_services_ticket_purchase_confirmation

This data flow is used within the Provide Driver and Traveler Services function. It contains a massage to say that a ticket purchase is confirmed and includes a confirmation number. The data flow consists of the following items each of which is defined in its own DDE:

confirmation_flag
+ travel_services_reservation_number

travel_services_time

This data flow is used within the Provide Driver and Traveler Services function and contains the time at which an associated travel service will be available. It consists of the following data item which is defined in its own DDE:

time

travel_services_tourist_activities

This data flow is used within the Provide Driver and Traveler Services function and contains details of tourist specific activities in the area served by the function, including the type of activity and the address at which the activity will take place. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_type
+ travel_services_contact
+ travel_services_description
+ travel_services_location

+ travel_services_time}

travel_services_tourist_services

This data flow is used within the Provide Driver and Traveler Services function and contains details of travel agents in the area served by the function, including the service(s) provided by the agent and the agent's address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{travel_services_type
+ travel_services_contact
+ travel_services_description
+ travel_services_location}

travel_services_transaction_information

This data flow is used within the Provide Driver and Traveler Services function concerning the availability of external travel services. It contains information which will be specific to the area covered by the function and which will include details of what facilities are currently available for purchase, etc. The data flow consists of the following items each of which is defined in its own DDE:

travel_services_lodging_information
+ travel_services_dining_information
+ travel_services_ticket_information

travel_services_transaction_request

This data flow is used to make reservations for various other travel services. It contains the following data items each of which is defined in its own DDE:

travel_services_dining_reservation
+ travel_services_lodging_reservation
+ travel_services_ticket_purchase
+ travel_services_non-motorized_reservation

travel_services_type

This data flow is used within the Provide Driver and Traveler Services function to define the type of travel service that is being provided. It will comprise but not be limited to hotel, motel, travel lodge, restaurant, take away, diner, theater, concert, stage show, National Football League Game, and National Hockey League Game, or non-motorized transportation service.

travel_services_update_request

This data flow is used within the Provide Driver and Traveler Services function to request an update of the travel services data currently available to travelers. The source of the data request may be specified as either the local suppliers (the information and service provider terminator) or suppliers outside the immediate ITS geographic area of operation (the other information and service provider terminator).

traveler_advanced_payment_at_roadside

This data flow is sent from the Manage Transit function to the Provide Electronic Payment Services function. It contains the cost of advanced payments that must be deducted from the credit currently stored on the traveler card / payment instrument, being used by a traveler at the roadside, i.e. a transit stop. These advanced payments may cover tolls, and/or parking lot charges, and/or transit fares. The data flow consists of the following data items each of which is defined in its own DDE:

stored_credit
+ parking_lot_cost
+ toll_cost
+ transit_fare

traveler_advanced_payments_confirm

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that a request for the advanced payment of the tolls, and/or parking lot charges, and/or transit fares, for a trip plan which has been accepted by the traveler. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ advanced_tolls_confirm
+ advanced_fares_confirm
+ advanced_traveler_charges_confirm

traveler_advanced_payments_request

This data flow is used within the Provide Electronic Payment Services function and contains a request for advanced payment of the tolls, and/or parking lot charges, and/or transit fares for a trip which a traveler has confirmed. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ credit_identity
+ toll_route_segments
+ ride_segments
+ parking_space_details

traveler_alarm_acknowledge

This data flow confirms that the request for emergency services previously sent by the traveler via a silent or audible alarm has been received by the Manage Emergency Services function. The traveler may be at a transit stop, rest area, park and ride lot, modal interchange facilities, etc. The information will be sent out as part of the response to an emergency or incident being detected within the network. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag

traveler_alarm_request

This data flow is sent from the traveler to the Manage Emergency Services function and includes a silent or audible alarm request for emergency assistance. The traveler may be at a transit stop, rest area, park and ride lot, modal interchange facilities, etc. The data flow contains the following data items each of which is defined in its own DDE:

date
+ time
+ traveler_personal_emergency_request

traveler_archive_catalog

This data flow is used in to provide the description of the data contained in the collection of traveler information data that has been stored and made available for the Manage Archive Function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g. time range of entries, number of entries; or sample data products.

traveler_archive_catalog_request

This data flow from the Manage Archived Data function to the Provide Driver and Traveler Services function contains the request for a catalog of the data held by the Provide Driver and Traveler Services function. The request for a catalog may include either or both the description of the types of data the archive is interested in or a time frame over which the requested information may be available.

traveler_archive_data

This data flow is from the Provide Driver and Traveler Services function to the Manage Archive Data function. It contains a catalog and details of all of the service requests and confirmations input by the traveler via their vehicle, a personal device or kiosk; including traveler information requests, aggregated vehicle traffic probe data, multimodal trip requests and rideshare requests. Along with the data is a set of meta-data or attributes describing the data being archived. This data flow contains the following data items each of which is defined in its own DDE:

traveler_archive_catalog
+ traveler_data_for_archive

traveler_archive_data_request

This data flow from the Manage Archived Data function to the Provide Driver and Traveler Services function contains the request for the data held by the Provide Driver and Traveler Services function. The request for data may include either or both the description of the data required or a time frame over which the requested information may be available.

traveler_archive_input

This data flow from the Manage Archived Data function to the Provide Driver and Traveler Services function contains the request for the catalog of data and the data itself. This flow also contains a report of status from the archive function. This data flow consists of the following data items each of which is defined in its own DDE:

traveler_archive_request
+ traveler_archive_status

traveler_archive_request

This data flow from the Manage Archived Data function to the Provide Driver and Traveler Services function contains the request for data collected and stored by the Provide Driver and Traveler Services function. This data flow includes request for service request data, information utilization data, route guidance data, source/destination trip data, vehicle probe data, and parking management data. It consists of the following data items each of which is defined in its own DDE:

traveler_archive_catalog_request
+ traveler_archive_data_request

traveler_archive_status

This data flow is sent from the Manage Archived Data function to the Provide Driver and Traveler Services function. It is the status returned when traveler information archive data is sent from the Provide Driver and Traveler Services function to the Manage Archived Data function.

traveler_broadcast_border_data

This data flow contains border crossing information to be broadcast to kiosks and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

border_data_for_broadcast

traveler_broadcast_event_information

This data flow contains event information to be broadcast to kiosks and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

event_information_for_broadcast

traveler_broadcast_incident_information
This data flow contains incident information to be broadcast to kiosks and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

incident_information_for_broadcast

traveler_broadcast_multimodal_data
This data flow contains multimodal travel services information to be broadcast to kiosks and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

multimodal_data_for_broadcast

traveler_broadcast_parking_data
This data flow contains parking information to be broadcast to kiosks and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

parking_data_for_broadcast

traveler_broadcast_price_data
This data flow contains price information to be broadcast to kiosks and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

price_data_for_broadcast

traveler_broadcast_traffic_data
This data flow contains traffic information to be broadcast to kiosks and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

traffic_data_for_broadcast

traveler_broadcast_transit_data
This data flow contains transit information to be broadcast to kiosks and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

transit_data_for_broadcast

traveler_broadcast_weather_data
This data flow contains weather information to be broadcast to kiosks and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

weather_data_for_broadcast

traveler_category
This data flow is used within the Manage Transit function and contains the category of traveler to which the associated transit fare applies, e.g. adult, child, senior citizen, disabled, etc.

traveler_contact_information
This data flow contains contact information for the traveler. This information would include address, phone number(s) (possibly referenced to time of day), fax number, pager number, and email address.

traveler_contact_setting
This data flow contains traveler's contact information to be used in his personal profile for obtaining travel information. The data flow includes the following data items each of which is defined in its own DDE:

traveler_name
+ traveler_contact_information

traveler_data_collection_parameters
This data store is used within the Provide Driver and Traveler Services function to hold parameters used to govern traveler data collection (transit, traffic, emergency, etc.) processes to support traveler services (trip planning, broadcast data, etc.) These parameters can be viewed by the ISP Operator and updated if required. The data flow consists of the following data items each of which is defined in its own DDE:

transit_traveler_data_collection_parameters
+ traffic_traveler_data_collection_parameters
+ multimodal_traveler_data_collection_parameters
+ misc_trav_info_data_collection_parameters
+ emergency_traveler_data_collection_parameters
+ probe_data_collection_parameters

traveler_data_for_archive
This data flow is used within the Provide Driver and Traveler Services function. It contains details of all of the service requests

and confirmations input by the traveler via a vehicle, personal device or kiosk, including aggregated vehicle traffic probe data, multimodal trip requests and traveler rideshare requests. It contains the following data items each of which is defined in its own DDE:

trip_planning_requests_for_archive
+ trip_planning_requests_attributes
+ trip_planning_confirmations_for_archive
+ trip_planning_confirmations_attributes
+ traffic_probe_aggregated_data_for_archive
+ traffic_probe_aggregated_data_attributes
+ traveler_info_requests_for_archive
+ traveler_info_requests_attributes
+ emergency_info_requests_for_archive
+ emergency_info_requests_attributes
+ travel_services_requests_for_archive
+ travel_services_requests_attributes
+ vehicle_route_guidance_data_for_archive
+ vehicle_route_guidance_data_attributes
+ traveler_route_guidance_data_for_archive
+ traveler_route_guidance_data_attributes
+ current_other_routes_use_for_archive
+ current_other_routes_use_attributes

traveler_device_identity

This data flow provides an identity of a device being used by a traveler to access ITS data. The identity is used to create device settings for subscription type transmission of personalized data.

traveler_device_setting

This data flow contains information about the device used by the traveler to access travel information. The data flow contains a setting identity (so there can be multiple device settings per user), and specifics of the device which could include type of hardware, type of software, or modem speed and characteristics. It consists of the following data items each of which is defined in its own DDE:

traveler_device_identity
+ device_setting

traveler_display_map_data

This data flow is used by processes in the Provide Driver and Traveler Services function as a source of digitized data on the physical layout of the road and highway network. Its digitized map data is for use as background to displays of trip information requested by the traveler from a kiosk. The map data will enable the trip information to be output to be shown at the kiosk against a background that includes its location context to enable travelers to understand it more easily. The data consists of the following items each of which is defined in its own DDE:

map_digitized_data
+ map_link_identity_data
+ map_gazetteer_data
+ map_transit_data
+ map_hri_data

traveler_emergency_info

This flow provides emergency traveler information to the Provide Traveler Services at Kiosks function. It contains the following items each of which is defined in its own DDE:

traveler_evacuation_traveler_information
+ traveler_transportation_system_status
+ traveler_wide_area_alert_information
+ traveler_emergency_traveler_information

traveler_emergency_information_request

This data flow is used within the Provide Remote Traveler Services function and contains a request for evacuation information, incident traffic impact, and other emergency information by a traveler from a kiosk. This request will also be used to sort and filter the data. It consists of the following items each of which is defined in its own DDE:

kiosk_identity
+ emergency_information_request

traveler_emergency_traveler_information

This data flow contains emergency information to be disseminated to the traveler at a kiosk and other remote traveler services. This data flow consists of the following items each of which is defined in its own DDE:

care_facility_status_for_isp
+ incident_details_from_media
+ shelter_information_to_travelers
+ emergency_travel_service_update
+ traffic_incident_data_for_isp

+ other_isp_emergency_data
+ incident_information

traveler_evacuation_traveler_information
This data flow contains evacuation information to be disseminated to the traveler at a kiosk and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

evacuation_data_for_isp

traveler_event_information_request
This data flow contains a request for event information by a traveler from a kiosk. It consists of the following items each of which is defined in its own DDE:

kiosk_identity
+ event_information_request

traveler_guidance_accepted
This data flow is used within the Provide Driver and Traveler Services function and contains the acceptance by the traveler of the previously provided route for autonomous or on-line guidance. Acceptance must be provided before guidance can begin. The data flow consists of the following data item which is defined in its own DDE:

route_identity

traveler_guidance_data
This data flow is used within the Provide Driver and Traveler Services function and contains data input by the traveler to a personal device that is to be used in a guidance request. It consists of some or all of the following data items each of which is defined in its own DDE:

origin
+ destination
+ desired_arrival_time
+ modes
+ preferred_routes
+ preferred_alternate_routes
+ preferred_ridesharing_options
+ preferred_route_segments
+ preferred_transit_options
+ constraint_on_acceptable_travel_time
+ constraint_on_number_of_mode_changes
+ constraint_on_number_of_transfers
+ constraint_on_eta_change
+ constraint_on_special_needs

traveler_guidance_instructions
This data flow is used within the Provide Driver and Traveler Services function. It contains details of the next route segment to be followed by the traveler in the form of which side of the road to walk, which cycle track to use, which transit service to take, etc.

traveler_guidance_request
This data flow is used within the Provide Driver and Traveler Services function and is used to request on-line dynamic or autonomous guidance for the traveler using a personal device. The choice of the type of guidance made by the traveler could either be infrastructure based dynamic or totally autonomous, i.e. no contact with anything outside the personal device, except for broadcast data used to determine location.

traveler_guidance_route
This data flow is used within the Provide Driver and Traveler Services function and contains the data for a traveler's route which has been produced following a route request from the traveler. This data flow includes the information required to provide an initial route or a route change to a traveler who is en route. It consists of the following data items each of which is defined in its own DDE:

route_identity
+ traveler_route
+ traveler_identity

traveler_handicap_access_request
This data flow is used to request assisted handicap access such as the available handicap parking facilities.

traveler_identity
This data flow contains the identity of the traveler who is making a request for information or guidance, so that the results of the request can be sent back to the originating traveler. It may be passed to processes in functions outside the Provide Driver and Traveler Services function for the same purpose. The identity can be alphanumeric characters so that (for example) the traveler's family name and initials can be used.

traveler_identity_store
This store is used within the Provide Driver and Traveler Services function and holds the identity of the traveler's Personal Device (PPD). This will be pre-loaded into the PPD during its manufacture and can be associated with its owner.

traveler_incident_information_request

This data flow contains a request for incident information by a traveler from a kiosk. It consists of the following items each of which is defined in its own DDE:

kiosk_identity
+ incident_information_request

traveler_incident_input

This data flow contains the digitized input from the secure area environment in the transit operations network. This data will have been converted from its raw input form by sensors within the Manage Transit function.

traveler_info_data_archive

This store is used within the Provide Driver and Traveler Services function. It contains a catalog and details of all of the service requests and confirmations input by the traveler via a vehicle, personal device or kiosk. The data includes aggregated vehicle traffic probe data, multimodal trip requests and traveler rideshare requests along with the meta-data/attributes for the archived data. It contains the following data items each of which is defined in its own DDE:

traveler_archive_catalog
+ traveler_data_for_archive

traveler_info_requests_attributes

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data attribute information to the data archive about the requests for traveler information. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

traveler_info_requests_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about traveler requests input by the traveler via a personal device, vehicle, kiosk, or traveler telephone/telecommunications-based information systems. It consists of the following data items each of which is defined in its own DDE:

list_size{traveler_information_request
+ traveler_personal_information_request
+ vehicle_information_request
+ traveler_telecomm_information_request}

traveler_information_from_media

This data flow is sent from the media to the Provide Driver and Traveler Services function and contains information that the media has that might be of interest to travelers planning trips. This may include, but not be limited to such things as sports or other special events.

traveler_information_parameters

This data store is used within the Provide Driver and Traveler Services function to hold parameters used to control the dissemination of traveler information, including wide area information broadcast and interactive traveler data, traveler information alerts, yellow pages information, and emergency traveler information. These parameters can be viewed by the ISP Operator and updated if required. The data flow consists of the following data items each of which is defined in its own DDE:

broadcast_traveler_information_parameters
+ interactive_traveler_information_parameters
+ emergency_traveler_information_parameters
+ travel_services_data_parameters

+ center_traveler_information_parameters
+ alert_traveler_information_parameters

traveler_information_request
This data flow is used within the Provide Traveler Information Services function and contains a request for traffic, transit, incidents, and other traveler information by a traveler from a kiosk. This request will also be used to sort and filter the data. It consists of the following items each of which is defined in its own DDE:

traveler_traffic_data_request
+ traveler_transit_data_request
+ traveler_incident_information_request
+ traveler_weather_data_request
+ traveler_event_information_request
+ traveler_parking_data_request
+ traveler_multimodal_data_request
+ traveler_price_data_request

traveler_information_request_for_response
This data flow is used within the Provide Driver and Traveler Services function and contains details of the types of information requested by a traveler from a kiosk. It consists of the following items each of which is defined in its own DDE:

traveler_information_request
+ traveler_emergency_information_request
+ traveler_travel_services_data_request

traveler_information_restrictions_for_traffic
This data flow is sent to the Manage Traffic function to protect sensitive traveler information.

traveler_information_restrictions_for_transit
This data flow is sent to the Manage Transit function to protect sensitive traveler information. It consists of the following data items each of which is defined in its own DDE:

incident_status_update

traveler_information_restrictions_for_travelers
This data flow is sent to the Provide Driver and Traveler Services function to protect sensitive traveler information.

traveler_input_request
This data flow is used within the Provide Driver and Traveler Services function to request the input of data needed for a route request and which is not already present in the function's internal data stores.

traveler_interactive_border_data
This data flow contains border crossing information, processed for traveler consumption, to be disseminated to the traveler at a kiosk and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

border_data_for_interactive

traveler_interactive_event_information
This data flow contains event information, processed for traveler consumption, to be disseminated to the traveler at a kiosk and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

event_information_for_interactive

traveler_interactive_incident_information
This data flow contains incident information, processed for traveler consumption, to be disseminated to the traveler at a kiosk and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

incident_information_for_interactive

traveler_interactive_multimodal_data
This data flow contains multimodal travel services information, processed for traveler consumption, to be disseminated to the traveler at a kiosk and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

multimodal_data_for_interactive

traveler_interactive_parking_data
This data flow contains parking information, processed for traveler consumption, to be disseminated to the traveler at a kiosk and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

parking_data_for_interactive

traveler_interactive_price_data
This data flow contains price information, processed for traveler consumption, to be disseminated to the traveler at a kiosk and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

price_data_for_interactive

traveler_interactive_traffic_data
This data flow contains traffic information, processed for traveler consumption, to be disseminated to the traveler at a kiosk and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

traffic_data_for_interactive

traveler_interactive_transit_data
This data flow contains transit information, processed for traveler consumption, to be disseminated to the traveler at a kiosk and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

transit_data_for_interactive

traveler_interactive_weather_data
This data flow contains weather information, processed for traveler consumption, to be disseminated to the traveler at a kiosk and other remote traveler services. This data flow consists of the following item which is defined in its own DDE:

weather_data_for_interactive

traveler_intrusion_motion_sensor_control
This data flow provides control commands for intrusion or motion detection sensors located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ intrusion_motion_sensor_control_data}

traveler_intrusion_motion_sensor_data
This data flow contains actual sensor readings collected from intrusion or motion detection sensors located in secure areas frequented by travelers during normal operational hours, but typically empty during off-hours, including transit stops, rest areas, travel information centers, etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ intrusion_motion_sensor_data_collected}

traveler_intrusion_motion_sensor_data_for_field_proc
This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from intrusion or motion detection sensors located in areas frequented by travelers during normal operational hours, but typically empty during off-hours, including transit stops, rest areas, travel information centers, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ intrusion_motion_sensor_data_collected

traveler_intrusion_motion_sensor_status
This data flow is used within the Manage Emergency Services function to report the operational status (state of the sensor device, configuration, and fault data) of an intrusion or motion detection sensor located in areas frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, etc.). By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_device_status}

traveler_journey_end
This data flow is used within the Manage Transit function. It contains the identity of the route segment at the end of a traveler's journey. The identity will be that at which the traveler will leave the transit vehicle at the end of the ride. The data flow consists of the following data item which is defined in its own DDE:

transit_route_segment_identity

traveler_journey_start
This data flow is used within the Manage Transit function. It contains the identity of the route segment at the start of a traveler's journey. The identity will either be that of the transit stop at which the traveler purchases a ride, or the segment at which the transit vehicle was located when the traveler purchased a ride from on-board the vehicle. The data flow consists of the following data item which is defined in its own DDE:

transit_route_segment_identity

traveler_location

This data flow is used within the Provide Driver and Traveler Services function and contains the traveler's location as supplied by a Location Data Source. It consists of the following item which is defined in its own DDE:

location_identity

traveler_location_for_autonomous_guidance

This data flow is used within the Provide Driver and Traveler Services function and contains the traveler's location as supplied by a Location Data Source. This is a high precision data flow that enables the location of the traveler to be pin-pointed to a high degree of accuracy and is used for traveler autonomous guidance purposes. It consists of the following item which is defined in its own DDE:

location_identity

traveler_location_for_dynamic_guidance

This data flow is used within the Provide Driver and Traveler Services function and contains the traveler's location as supplied by a Location Data Source. This is a high precision data flow that enables the location of the traveler to be pin-pointed to a high degree of accuracy and is used for traveler dynamic guidance purposes. It consists of the following item which is defined in its own DDE:

location_identity

traveler_location_for_emergencies

This data flow contains the traveler's location as supplied by a Location Data Source. This is a high precision data flow that enables the location of the traveler to be pin-pointed to a high degree of accuracy and is used to provide the destination for the emergency services to the emergency call-out message. It consists of the following item which is defined in its own DDE:

location_identity

traveler_location_for_information

This data flow is used within the Provide Driver and Traveler Services function and contains the traveler's location as supplied by a Location Data Source. This is a high precision data flow that enables the location of the traveler to be pin-pointed to a high degree of accuracy and is used to filter personal information data output. It consists of the following item which is defined in its own DDE:

location_identity

traveler_location_for_planning

This data flow is used within the Provide Driver and Traveler Services function and contains the traveler's location as supplied by a Location Data Source. This is a high precision data flow that enables the location of the traveler to be pin-pointed to determine the origin for trip planning requests and to act as a filter for traffic and travel information. It consists of the following item which is defined in its own DDE:

location_identity

traveler_map_database

This data store is used by the Provide Driver and Traveler Services function. It contains details of the physical geometry of each segment of roads, transit routes, pathways, cycleways, etc., which may be used by a traveler. This data includes the location of such things as signs, bends, junctions, traffic lanes, transit stops, and their use, etc. For each segment, where available it also contains the historical average link journey time and queuing time computed from data recorded over the last several months, and available for different times of the day/days of the week, to take account of peak travel times, weekend travel, etc.

traveler_map_update_payment_request

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains a request that payment be made for an update of the navigable map database used by the traveler for on-line personal guidance. The payment will be made by debiting the credit identity with the cost through the financial institution terminator. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ credit_identity
+ navigable_map_traveler_update_cost

traveler_map_update_payment_response

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function and contains the response to a previous request from the traveler that payment be made for an update of the navigable map database used for on-line traveler guidance. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ traveler_identity

traveler_map_update_request

This data flow is used within the Provide Driver and Traveler Services function and contains a request for an update of the navigable map database used for on-line traveler personal guidance. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ traveler_identity

traveler_map_update_response
This data flow contains the response to a previous request from the traveler for an update of the navigable map database used for on-line traveler guidance. Payment can be made by reducing the credit and stored credit data items or by using a previously supplied credit identity through the financial institution using the previously supplied credit identity. The success of this transaction will be indicated by the confirmation flag data item. The data flow consists of the following data items and others each of which is defined in its own DDE:

confirmation_flag
+ navigable_map_traveler_update_cost
+ stored_credit
+ traveler_identity

traveler_multimodal_data_request
This data flow contains a request for multimodal transportation information by a traveler from a kiosk. It consists of the following items each of which is defined in its own DDE:

kiosk_identity
+ multimodal_data_request

traveler_name
This data flow contains the traveler's name, which could be implemented as a single element, or as separate last and first name elements.

traveler_object_detection_sensor_control
This data flow provides control commands for object detection sensors located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ object_sensor_control_data}

traveler_object_detection_sensor_data
This data flow contains actual sensor readings collected from object detection sensors located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ object_sensor_data_collected}

traveler_object_detection_sensor_data_for_field_proc
This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from object detection sensors located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ object_sensor_data_collected

traveler_object_detection_sensor_status
This data flow is used within the Manage Emergency Services function to report the operational status (state of the sensor device, configuration, and fault data) of an object detection sensor located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, model interchange facilities, etc. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_device_status}

traveler_other_services_payment_request
This data flow is used to send traveler payment information for the confirmed use of other (yellow pages) services that my (or may not) be part of a confirmed trip from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function. It contains the following data items each of which is defined in its own DDE:

traveler_identity
+ credit_identity
+ travel_services_dining_reservation

+ travel_services_lodging_reservation
+ travel_services_ticket_purchase

traveler_other_services_payment_result

This data flow is sent by the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function to indicate the payment for a confirmed trip has been successfully completed. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ other_services_payment_confirm

traveler_parking_confirmation

This data flow is used within the Provide Driver and Traveler Services function and contains a traveler's request to confirm a parking reservation as part of their trip. It consists of the following data item which is defined in its own DDE:

traveler_identity

traveler_parking_data_request

This data flow contains a request for parking information by a traveler from a kiosk. It consists of the following items each of which is defined in its own DDE:

kiosk_identity
+ parking_data_request

traveler_payment_confirmation

This data flow is used within the Provide Driver and Traveler Services function to indicate the payment for a confirmed trip has been successfully completed or that the total cost can now be deducted from the credit stored on the traveler's traveler card/ payment instrument The request for payment will have been initiated by input from the traveler to a kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

advanced_tolls_confirm
+ advanced_fares_confirm
+ advanced_traveler_charges_confirm
+ credit_identity
+ kiosk_identity
+ stored_credit
+ traveler_total_trip_cost

traveler_payment_information

This data flow is used within the Provide Driver and Traveler Services function. It contains details of the components of a trip which a traveler has obtained from the input of data to a kiosk and for which advanced payment is needed following trip confirmation. The traveler's identity and credit identity or stored credit from the traveler card / payment instrument are therefore also included to enable payment to be made. The data flow consists of the following items each of which is defined in its own DDE:

credit_identity
+ kiosk_identity
+ parking_space_details
+ ride_segments
+ stored_credit
+ toll_route_segments

traveler_payment_information_for_services

This data flow is used within the Provide Driver and Traveler Services function. It contains details of the components of a trip which a traveler has obtained from the input of data to a kiosk and for which advanced payment is needed following trip confirmation. The traveler's identity and credit identity or stored credit from the traveler card / payment instrument are therefore also included to enable payment to be made. The data flow consists of the following items each of which is defined in its own DDE:

credit_identity
+ kiosk_identity
+ travel_services_requested
+ stored_credit

traveler_payment_request

This data flow is used to send traveler payment information for a confirmed trip from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function. The payment will have been initiated by input from the traveler to a kiosk or a personal device. The data flow consists the following data items each of which is defined in its own DDE:

credit_identity
+ ride_segments
+ parking_space_details
+ stored_credit
+ toll_route_segments
+ transaction_number
+ traveler_identity

traveler_payment_response

This data flow is sent by the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function to indicate the payment for a confirmed trip has been successfully completed. The payment will have been initiated by input from the traveler to a kiosk or a personal device. The data flow consists of the following data items each of which is defined in its own DDE:

transaction_number
+ advanced_tolls_confirm
+ advanced_fares_confirm
+ advanced_traveler_charges_confirm

traveler_payments_transactions

This data flow is sent from the Provide Electronic Payment Services function to the Manage Transit function and contains records of all payment transactions for the provision of other (yellow pages) services to travelers.

traveler_personal_alert_subscriptions

This data flow contains a traveler's subscriptions for alerts (e.g., traffic congestion, transit service disruption, incidents, weather road conditions) based on the traveler's location, search radius, bus route, and so forth. This flow may also contain configurable alert thresholds (e.g., parking lot almost full, severity of the alert, average speed less than a certain value). It consists of the following items each of which is defined in its own DDE:

traveler_personal_border_alert_subscriptions
+ traveler_personal_event_alert_subscriptions
+ traveler_personal_incident_alert_subscriptions
+ traveler_personal_multimodal_alert_subscriptions
+ traveler_personal_parking_alert_subscriptions
+ traveler_personal_traffic_alert_subscriptions
+ traveler_personal_transit_alert_subscriptions
+ traveler_personal_weather_alert_subscriptions

traveler_personal_border_alert

This data flow contains traveler alerts that report regionally relevant border closures, delays, border incidents, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions including the traveler's location, search radius, drive route, or timeframe, as well as configurable alert thresholds (e.g., border wait times, queue lengths, severity of the alert). It consists of the following data item which is defined in its own DDE:

border_alert

traveler_personal_border_alert_subscriptions

This data flow contains a traveler's subscription for border closure/delay alerts, and may include other parameters such as the traveler's location, search radius, drive route, or timeframe. It may also contain configurable alert thresholds (e.g., border wait times, queue lengths, severity of the alert).

traveler_personal_broadcast_border_data

This data flow contains border crossing information to be broadcast to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

border_data_for_broadcast

traveler_personal_broadcast_event_information

This data flow contains event information to be broadcast to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

event_information_for_broadcast

traveler_personal_broadcast_incident_information

This data flow contains incident information to be broadcast to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

incident_information_for_broadcast

traveler_personal_broadcast_multimodal_data

This data flow contains multimodal travel services information to be broadcast to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

multimodal_data_for_broadcast

traveler_personal_broadcast_parking_data

This data flow contains parking information to be broadcast to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

parking_data_for_broadcast

traveler_personal_broadcast_price_data

This data flow contains price information to be broadcast to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

price_data_for_broadcast

traveler_personal_broadcast_traffic_data

This data flow contains traffic information to be broadcast to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

traffic_data_for_broadcast

traveler_personal_broadcast_transit_data

This data flow contains transit information to be broadcast to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

transit_data_for_broadcast

traveler_personal_broadcast_weather_data

This data flow contains weather information to be broadcast to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

weather_data_for_broadcast

traveler_personal_credit_identity

This data flow is sent from the Provide Electronic Payments Services function to the Provide Driver and Traveler Services function and contains the credit identity of a traveler using a personal device, e.g. PDA. It is obtained as data input from the traveler card / payment instrument terminator and consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit

traveler_personal_data

This data flow is sent from the Provide Electronic Payments Services function to the Provide Driver and Traveler Services function and contains the credit identity and information about a traveler using a personal device, e.g. PDA. It consists of the following data items each of which is defined in its own DDE:

traveler_personal_credit_identity
+ traveler_personal_information

traveler_personal_data_update

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains cost data and updates to traveler information for travelers using on-line personal devices. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_personal_display_update_cost
+ traveler_personal_trip_costs
+ traveler_personal_information_update

traveler_personal_display_map_update_request

This data flow is used within the Provide Driver and Traveler Services function and contains the request for the update of the data for the digitized map displays used as the background to the output of traffic, trip and travel information in a traveler's personal device. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ traveler_identity

traveler_personal_display_map_update_response

This data flow contains the response to the previous request for the update of the data for the digitized map displays used as the background to the output of traffic, trip and travel information on a traveler's personal device. Payment can be made by reducing the credit and stored credit data items or by using a previously supplied credit identity through the financial institution using the previously supplied credit identity. The success of this transaction will be indicated by the confirmation flag data item. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ display_map_traveler_update_cost
+ stored_credit
+ traveler_identity

traveler_personal_display_update_cost

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function. It contains the cost of the update to the digitized map displays used as the background to the output of traffic, trip and travel information on a traveler's personal device. This cost is to be deducted from the credit currently stored on the traveler's

traveler card / payment instrument. The data flow includes the following data items each of which is defined in its own DDE:

display_map_traveler_update_cost
+ stored_credit
+ traveler_identity

traveler_personal_display_update_payment_request

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains a request that payment be made for an update of the digitized map data used as background to the displays of traffic and travel information on a traveler's personal device. The payment will be made by debiting the credit identity with the cost through the financial institution terminator. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ credit_identity
+ display_map_traveler_update_cost

traveler_personal_display_update_payment_response

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function and contains the response to a previous request from the traveler that payment be made for an update of the digitized map data used as background to the displays of traffic and travel information on a traveler's personal device. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ traveler_identity

traveler_personal_emergency_info

This flow provides emergency traveler information to the Provide Traveler Personal Services function. It contains the following items each of which is defined in its own DDE:

traveler_personal_evacuation_traveler_information
+ traveler_personal_transportation_system_status
+ traveler_personal_wide_area_alert_information
+ traveler_personal_emergency_traveler_information

traveler_personal_emergency_information_request

This data flow is used within the Provide Remote Traveler Services function and contains a request for evacuation information, incident traffic impact, and other emergency information by a traveler from a personal device. This request will also be used to sort and filter the data. It consists of the following item which is defined in its own DDE:

traveler_identity
+ emergency_information_request

traveler_personal_emergency_request

This data flow is used to carry data about an emergency situation that applies to a traveler. It contains the following data items each of which is defined in its own DDE:

traveler_identity
+ traveler_location_for_emergencies

traveler_personal_emergency_request_for_transit

This data flow is used to carry data about an emergency situation that applies to a traveler on the transit system. It contains the following data items each of which is defined in its own DDE:

transit_vehicle_location

traveler_personal_emergency_traveler_information

This data flow contains emergency information to be disseminated to the traveler at their personal device. This data flow consists of the following items each of which is defined in its own DDE:

care_facility_status_for_isp
+ incident_details_from_media
+ shelter_information_to_travelers
+ traffic_incident_data_for_isp
+ other_isp_emergency_data
+ emergency_travel_service_update
+ incident_information

traveler_personal_evacuation_traveler_information

This data flow contains evacuation information to be disseminated to the traveler at their personal device. This data flow consists of the following item which is defined in its own DDE:

evacuation_data_for_isp

traveler_personal_event_alert

This data flow contains traveler alerts that report regionally relevant special events, and may include the event type, start/end times, event attendance, expected traffic impact), and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions including the traveler's location, search radius, drive route, or timeframe, as well as configurable alert thresholds (e.g., severity of the alert). It consists of the following data item which is defined in its own DDE:

event_alert

traveler_personal_event_alert_subscriptions

This data flow contains a traveler's subscription for special event alerts, and may include other parameters such as the traveler's location, search radius, drive route, or timeframe. It may also contain configurable alert thresholds (e.g., severity of the alert).

traveler_personal_event_information_request

This data flow contains a request for event information by a traveler using a traveler's personal device. It consists of the following items each of which is defined in its own DDE:

event_information_request
+ traveler_identity

traveler_personal_incident_alert

This data flow contains traveler alerts that report regionally relevant incidents, and may include the incident type, expected duration, expected traffic impact, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions including the traveler's location, search radius, drive route, or timeframe, as well as configurable alert thresholds (e.g., severity of the alert). It consists of the following data item which is defined in its own DDE:

incident_alert

traveler_personal_incident_alert_subscriptions

This data flow contains a traveler's subscription for incident alerts, and may include other parameters such as the traveler's location, search radius, drive route, or timeframe. It may also contain configurable alert thresholds (e.g., severity of the alert).

traveler_personal_incident_information_request

This data flow contains a request for incident information by a traveler using a traveler's personal device. It consists of the following items each of which is defined in its own DDE:

incident_information_request
+ traveler_identity

traveler_personal_information

This data flow contains information about the traveler using a personal device that may be used by ITS functions to identify travelers (e.g. name, address, etc.) and their traveling preferences (e.g. mode choices historical information, traveler profile data).

traveler_personal_information_request

This data flow is used within the Provide Traveler Information Services function and contains a request for traffic, transit, incidents, and other traveler information by a traveler from a personal device. This request will also be used to sort and filter the data. It consists of the following items each of which is defined in its own DDE:

traveler_personal_traffic_data_request
+ traveler_personal_transit_data_request
+ traveler_personal_incident_information_request
+ traveler_personal_weather_data_request
+ traveler_personal_event_information_request
+ traveler_personal_parking_data_request
+ traveler_personal_multimodal_data_request
+ traveler_personal_price_data_request

traveler_personal_information_request_for_response

This data flow contains the requests that travelers using a personal device have made for traveler information, traveler alerts, emergency information, and yellow pages data. It consists of the following items each of which is defined in its own DDE:

traveler_personal_information_request
+ traveler_personal_emergency_information_request
+ traveler_personal_travel_services_data_request
+ traveler_personal_alert_subscriptions

traveler_personal_information_update

This data flow contains updates concerning a traveler using a personal device to access ITS functions. This information may include updates to the traveler's personal information as they change addresses, update traveling history, or their profile.

traveler_personal_interactive_border_data

This data flow contains border crossing information, processed for traveler consumption, to be disseminated to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

border_data_for_interactive

traveler_personal_interactive_event_information
This data flow contains event information, processed for traveler consumption, to be disseminated to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

event_information_for_interactive

traveler_personal_interactive_incident_information
This data flow contains incident information, processed for traveler consumption, to be disseminated to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

incident_information_for_interactive

traveler_personal_interactive_multimodal_data
This data flow contains multimodal travel services information, processed for traveler consumption, to be disseminated to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

multimodal_data_for_interactive

traveler_personal_interactive_parking_data
This data flow contains parking information, processed for traveler consumption, to be disseminated to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

parking_data_for_interactive

traveler_personal_interactive_price_data
This data flow contains price information, processed for traveler consumption, to be disseminated to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

price_data_for_interactive

traveler_personal_interactive_traffic_data
This data flow contains traffic information, processed for traveler consumption, to be disseminated to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

traffic_data_for_interactive

traveler_personal_interactive_transit_data
This data flow contains transit information, processed for traveler consumption, to be disseminated to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

transit_data_for_interactive

traveler_personal_interactive_weather_data
This data flow contains weather information, processed for traveler consumption, to be disseminated to a traveler's personal device. This data flow consists of the following item which is defined in its own DDE:

weather_data_for_interactive

traveler_personal_map_update_cost
This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains the cost of an update to the navigable map database used within the traveler's personal device. This cost is to be deducted from the credit currently stored by the traveler's traveler card / payment instrument and will not be used when the instrument only contains a credit identity. The data flow consists of the following data items each of which is defined in its own DDE:

stored_credit
+ traveler_identity
+ navigable_map_traveler_update_cost

traveler_personal_multimodal_alert
This data flow contains traveler alerts that report regionally relevant ferry, air, and rail service disruptions and may include port closures, general delays, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions including the traveler's location, search radius, or timeframe, as well as configurable alert thresholds (e.g., severity of the alert). It consists of the following data item which is defined in its own DDE:

multimodal_alert

traveler_personal_multimodal_alert_subscriptions
This data flow contains a traveler's subscription for ferry, air, and rail service disruption alerts, and may include other parameters such as the traveler's location, search radius, or timeframe. It may also contain configurable alert thresholds (e.g., severity of the alert).

traveler_personal_multimodal_data_request
This data flow contains a request for multimodal travel services information by a traveler using a traveler's personal device. It consists of the following items each of which is defined in its own DDE:

multimodal_data_request
+ traveler_identity

traveler_personal_parking_alert
This data flow contains traveler alerts that report regionally relevant parking availability and may include lot closures, lot full/nearly full status, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions including the traveler's location, search radius, or timeframe, as well as configurable alert thresholds (e.g., lot is full or nearly full). It consists of the following data item which is defined in its own DDE:

parking_alert

traveler_personal_parking_alert_subscriptions
This data flow contains a traveler's subscription for parking availability alerts, and may include other parameters such as the traveler's location, search radius, or timeframe. It may also contain configurable alert thresholds (e.g., lot is full or nearly full).

traveler_personal_parking_data_request
This data flow contains a request for parking information by a traveler using a traveler's personal device. It consists of the following items each of which is defined in its own DDE:

parking_data_request
+ traveler_identity

traveler_personal_payment_confirmation
This data flow is used within the Provide Driver and Traveler Services function to indicate the payment for a confirmed trip has been successfully completed, or that the total cost can now be deducted from the credit stored on the traveler's traveler card/ payment instrument. The request for payment will have been initiated by input from the traveler to a personal device. The data flow consists of the following data items each of which is defined in its own DDE:

advanced_tolls_confirm
+ advanced_fares_confirm
+ advanced_traveler_charges_confirm
+ credit_identity
+ stored_credit
+ traveler_identity
+ traveler_total_trip_cost

traveler_personal_payment_information
This data flow is used within the Provide Driver and Traveler Services function. It contains details of the components of a trip which a traveler has obtained from the input of data to a personal device and for which advanced payment is needed following a trip confirmation. The traveler's identity and credit identity or stored credit from the traveler card / payment instrument are therefore also included to enable payment to be made. The data flow consists of the following items each of which is defined in its own DDE:

credit_identity
+ parking_space_details
+ ride_segments
+ stored_credit
+ toll_route_segments
+ traveler_identity

traveler_personal_payment_information_for_services
This data flow is used within the Provide Driver and Traveler Services function. It contains details of the components of a trip which a traveler has obtained from the input of data to a personal device and for which advanced payment is needed following a trip confirmation. The traveler's identity and credit identity or stored credit from the traveler card / payment instrument are therefore also included to enable payment to be made. The data flow consists of the following items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ travel_services_requested

traveler_personal_price_data_request
This data flow contains a request for price information by a traveler using a traveler's personal device. It consists of the following items each of which is defined in its own DDE:

price_data_request
+ traveler_identity

traveler_personal_profile
This data flow contains a traveler's personal profile (e.g. equipment capabilities, personal preferences) for obtaining traveler information (traffic, transit, multimodal, emergency, yellow pages, etc.), trip plans, and route selection and guidance information. This profile is submitted one time and then used to generate future information. It consists of the following data items each of which is defined in its own DDE:

traveler_contact_setting

+ traveler_device_setting
+ traveler_identity
+ traveler_preference_setting

traveler_personal_regular_data
This data store is used within the Provide Driver and Traveler Services function to hold items of data which are regularly used as part of traveler inputs to a personal device, such as the home location of the traveler which may act as the origin for trip requests, traveler identity which is used to identify data requests within the function and the traveler's credit identity which enables payment for advanced charges and other services.

traveler_personal_requests_and_confirmation
This data flow is used within the Provide Driver and Traveler Services function and contains requests for traffic, trip planning and travel information or confirmation that the previously requested information is acceptable to the traveler. The data will have been input by the traveler to a personal device. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_personal_trip_request
+ traveler_personal_payment_information
+ traveler_personal_trip_confirmation

traveler_personal_traffic_alert
This data flow contains traveler alerts that report regionally relevant traffic congestion, road work, or road closures and may average speeds, level of congestion, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions including the traveler's location, search radius, drive route, or timeframe, as well as configurable alert thresholds (e.g., level of congestion, average speed). It consists of the following data item which is defined in its own DDE:

traffic_alert

traveler_personal_traffic_alert_subscriptions
This data flow contains a traveler's subscription for traffic congestion, road work, or road closure alerts, and may include other parameters such as the traveler's location, search radius, drive route, or timeframe. It may also contain configurable alert thresholds (e.g., level of congestion, average speed).

traveler_personal_traffic_data_request
This data flow contains a request for traffic information by a traveler using a traveler's personal device. It consists of the following items each of which is defined in its own DDE:

traffic_data_request
+ traveler_identity

traveler_personal_transaction_confirmation
This data flow is used within the Provide Driver and Traveler Services function to confirm any reservations made by the traveler from a personal device. These reservations will be based on information obtained by the traveler from previous data input and output through the device. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ traveler_identity
+ transaction_number
+ travel_services_cost
+ travel_services_lodging_reservation_confirmation
+ travel_services_dining_reservation_confirmation
+ travel_services_ticket_purchase_confirmation

traveler_personal_transaction_request
This data flow is used within the Provide Driver and Traveler Services function and contains data input by the traveler using a personal device to make reservations for various other travel services. It contains the following data items, each of which is defined in its own DDE:

traveler_identity
+ travel_services_transaction_request

traveler_personal_transit_alert
This data flow contains traveler alerts that report regionally relevant transit service delays or service disruptions and may include bus stop closures, schedule delays, transit incidents, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions including the traveler's location, search radius, bus route, bus stop, or timeframe, as well as configurable alert thresholds (e.g., schedule delay). It consists of the following data item which is defined in its own DDE:

transit_alert

traveler_personal_transit_alert_subscriptions
This data flow contains a traveler's subscription for transit service delays or service disruptions, and may include other parameters such as the traveler's location, search radius, bus route, bus stop, or timeframe. It may also contain configurable alert thresholds (e.g., schedule delay).

traveler_personal_transit_data_request

This data flow contains a request for transit information by a traveler using a traveler's personal device. It consists of the following items each of which is defined in its own DDE:

transit_data_request
+ traveler_identity

traveler_personal_transportation_system_status

This data flow is used to communicate the general status of the transportation system to a traveler using a personal device. The data flow consists of the following data items each of which is defined in their own DDE:

disaster_transportation_system_status
+ evacuation_transportation_system_status

traveler_personal_travel_services_data

This data flow contains broadcast, interactive, and traveler alert data to be sent to the traveler interface facility for output using a personal device. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_personal_travel_services_provider_data
+ traveler_personal_broadcast_traffic_data
+ traveler_personal_broadcast_transit_data
+ traveler_personal_broadcast_incident_information
+ traveler_personal_broadcast_weather_data
+ traveler_personal_broadcast_event_information
+ traveler_personal_broadcast_parking_data
+ traveler_personal_broadcast_border_data
+ traveler_personal_broadcast_multimodal_data
+ traveler_personal_broadcast_price_data
+ traveler_personal_interactive_traffic_data
+ traveler_personal_interactive_transit_data
+ traveler_personal_interactive_incident_information
+ traveler_personal_interactive_weather_data
+ traveler_personal_interactive_event_information
+ traveler_personal_interactive_parking_data
+ traveler_personal_interactive_border_data
+ traveler_personal_interactive_multimodal_data
+ traveler_personal_interactive_price_data
+ traveler_personal_border_alert
+ traveler_personal_event_alert
+ traveler_personal_incident_alert
+ traveler_personal_multimodal_alert
+ traveler_personal_parking_alert
+ traveler_personal_traffic_alert
+ traveler_personal_transit_alert
+ traveler_personal_weather_alert

traveler_personal_travel_services_data_request

This data flow is used within the Provide Driver and Traveler Services function and contains a request for data on other travel services to be provided to a traveler using a personal device. The traveler identity is used as the means of ensuring that the data produced in response to the request is returned to the correct traveler. This request will also be used to sort and filter the data. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ travel_services_provider_data_request

traveler_personal_travel_services_provider_data

This data flow contains details of other travel services which is to be sent to the traveler interface facility for output using a personal device. The size of the data flow has been set to take account of the need to provide only a small percentage of the total travel services data that is available. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ travel_services_general_information
+ travel_services_specific_information
+ travel_services_transaction_information

traveler_personal_travel_services_provider_requests

This data flow is used within the Provide Driver and Traveler Services function to transfer requests for other travel services information from the traveler interface facility in a personal device to the travel services provider data collection facility. It consists of the following data items each of which is defined in its own DDE:

traveler_personal_payment_information_for_services
+ traveler_personal_transaction_request
+ traveler_personal_travel_services_data_request

traveler_personal_travel_services_requests

This data flow is used within the Provide Driver and Traveler Services function and contains a request for information by a traveler using a personal device. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_personal_travel_services_provider_requests
+ traveler_personal_information_request
+ traveler_personal_emergency_information_request
+ traveler_personal_alert_subscriptions

traveler_personal_trip_confirmation

This data flow is used within the Provide Driver and Traveler Services function to confirm the trip details provided as the result of a traveler's previous trip request input from a personal device. It contains the following data items each of which is defined in its own DDE:

paratransit_service_confirmation
+ traveler_identity
+ traveler_rideshare_confirmation
+ traveler_parking_confirmation

traveler_personal_trip_confirmation_information

This data flow is used within the Provide Driver and Traveler Services function and contains data confirming various aspects of a traveler's trip. It is sent as a result of a traveler previously requesting confirmation of a trip, the details of which were provided in response to data inputs from the traveler to a personal device. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_personal_payment_confirmation
+ traveler_personal_trip_information

traveler_personal_trip_costs

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function. It contains the cost of a traveler's trip based on a previous trip request and confirmation input by the traveler from a personal device such as a PDA. This cost is to be deducted from the credit currently stored on the traveler's traveler card / payment instrument. The data flow includes the following data items each of which is defined in its own DDE:

stored_credit
+ traveler_identity
+ traveler_total_trip_cost

traveler_personal_trip_information

This data flow is used within the Provide Driver and Traveler Services function and contains information about a proposed trip that the traveler has requested earlier from the personal device. It consists of the following data items each of which is defined in its own DDE:

current_conditions
+ [paratransit_personal_schedule | parking_lot_availability | route | rideshare_response]
+ traveler_identity
+ traveler_total_trip_cost

traveler_personal_trip_planning_requests

This data flow is used within the Provide Driver and Traveler Services function and contains data that the traveler has provided through a personal device so that a trip can be planned or general travel information or traveler information alerts can be provided. It consists of the following data items each of which is defined in its own DDE, all of which may not be present in any one data flow:

traveler_identity
+ traveler_personal_information_request
+ traveler_personal_trip_request
+ traveler_personal_trip_confirmation
+ traveler_personal_payment_information
+ traveler_personal_payment_information_for_services
+ traveler_personal_transaction_request
+ traveler_personal_profile
+ traveler_personal_travel_services_data_request
+ traveler_handicap_access_request
+ traveler_personal_emergency_information_request
+ traveler_personal_alert_subscriptions
+ traveler_personal_vmt_account_setup_info_from_trav
+ traveler_personal_vmt_payment_info_from_trav

traveler_personal_trip_planning_responses

This data flow is used within the Provide Driver and Traveler Services function and contains the responses to various requests for information, traveler information alert subscriptions, and trip planning services previously input by a traveler from a personal device. The data will only cover those services needed to fulfill the traveler's trip or information request. If the previous input from the traveler was a trip confirmation, the data will include either the credit identity or stored credit value originally supplied by the traveler's traveler card / payment instrument. The data flow consists of the following data items each of which is defined

in its own DDE:

traveler_identity
+ traveler_personal_trip_information
+ traveler_personal_payment_confirmation
+ traveler_personal_transaction_confirmation
+ traveler_personal_interactive_traffic_data
+ traveler_personal_interactive_transit_data
+ traveler_personal_interactive_incident_information
+ traveler_personal_interactive_weather_data
+ traveler_personal_interactive_event_information
+ traveler_personal_interactive_parking_data
+ traveler_personal_interactive_multimodal_data
+ traveler_personal_interactive_price_data
+ traveler_personal_travel_services_provider_data
+ traveler_personal_border_alert
+ traveler_personal_event_alert
+ traveler_personal_incident_alert
+ traveler_personal_multimodal_alert
+ traveler_personal_parking_alert
+ traveler_personal_traffic_alert
+ traveler_personal_transit_alert
+ traveler_personal_weather_alert
+ traveler_personal_vmt_account_reports_to_trav
+ traveler_personal_vmt_payment_request_to_trav

traveler_personal_trip_request
This data flow is used within the Provide Driver and Traveler Services function and contains data about a traveler's trip request which has been input from a personal device. It consists of the following data items each of which is defined in its own DDE:

trip_request
+ traveler_identity
+ rideshare_request
+ parking_request

traveler_personal_vmt_account_reports
This data flow is used within the Provide Open Road Tolling function and passed to other processes for output to travelers using personal devices. It contains reports of Vehicle Miles Traveled (VMT) road use charging activity.

traveler_personal_vmt_account_reports_to_trav
This data flow is sent from the Provide Open Road Tolling function to the Provide Driver and Traveler Services function and passed to other processes for output to travelers using personal devices. It contains reports of Vehicle Miles Traveled (VMT) road use charging activity.

traveler_personal_vmt_account_setup_info
This data flow is used within the Provide Open Road Tolling function and input from travelers using personal devices via other processes. It contains account setup information (associate an account with a vehicle owner and vehicle DMV registration) for Vehicle Miles Traveled (VMT) road use charges.

traveler_personal_vmt_account_setup_info_from_trav
This data flow is sent from the Provide Driver and Traveler Services function to the Provide Open Road Tolling function and input from travelers using personal devices via other processes. It contains account setup information (associate an account with a vehicle owner and vehicle DMV registration) for Vehicle Miles Traveled (VMT) road use charges.

traveler_personal_vmt_payment_info
This data flow is used within the Provide Open Road Tolling function and input from travelers using personal devices via other processes. It contains payment information for Vehicle Miles Traveled (VMT) road use charges.

traveler_personal_vmt_payment_info_from_trav
This data flow is sent from the Provide Driver and Traveler Services function to the Provide Open Road Tolling function and input from travelers using personal devices via other processes. It contains payment information for Vehicle Miles Traveled (VMT) road use charges.

traveler_personal_vmt_payment_request
This data flow is used within the Provide Open Road Tolling function and passed to other processes for output to travelers using personal devices. It contains requests for payment of road use charges (Vehicle Miles Traveled - VMT).

traveler_personal_vmt_payment_request_to_trav
This data flow is sent from the Provide Open Road Tolling function to the Provide Open Road Tolling function and passed to other processes for output to travelers using personal devices. It contains requests for payment of road use charges (Vehicle Miles Traveled - VMT).

traveler_personal_weather_alert
This data flow contains traveler alerts that report regionally relevant current and forecasted road weather conditions and may

include road temperatures, icy/flooded road conditions, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions including the traveler's location, search radius, drive route, or timeframe, as well as configurable alert thresholds (e.g., severity of the alert). It consists of the following data item which is defined in its own DDE:

weather_alert

traveler_personal_weather_alert_subscriptions

This data flow contains a traveler's subscription for current and forecasted road weather conditions, and may include other parameters such as the traveler's location, search radius, drive route, or timeframe. It may also contain configurable alert thresholds (e.g., severity of the alert).

traveler_personal_weather_data_request

This data flow contains a request for weather information by a traveler using a traveler's personal device. It consists of the following items each of which is defined in its own DDE:

weather_data_request
+ traveler_identity

traveler_personal_wide_area_alert_information

This data flow contains wide area alert information pertaining to a major emergency such as a natural or man-made disaster, civil emergency, severe weather, or child abduction for output to a traveler's personal device. This data flow consists of the following data item which is defined in its own DDE:

wide_area_alert_notification_for_travelers

traveler_preference_setting

This data flow contains information about the travelers preferences for receipt of data. The data flow consists of the following data items each of which is defined in its own DDE:

setting_identity
+ list_size{setting_type
    + setting_preferences}

traveler_price_data_request

This data flow contains a request for pricing information by a traveler from a kiosk. It consists of the following items each of which is defined in its own DDE:

kiosk_identity
+ price_data_request

traveler_regular_data

This data store is used within the Provide Driver and Traveler Services function to hold items of data which are regularly used as part of traveler inputs to a kiosk. Examples of this type of data are location (of the kiosk) which may act as the origin for trip requests and the identity of the kiosk which is used to track data through the processes in the function.

traveler_requests_and_confirmation

This data flow is used within the Provide Driver and Traveler Services function and contains requests for traffic, trip planning and travel information or confirmation that the previously requested information is acceptable to the traveler. The data will have been input by the traveler to a kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_trip_request
+ traveler_payment_information
+ traveler_trip_confirmation

traveler_rideshare_confirmation

This data flow is used within the Provide Driver and Traveler Services function and contains a traveler's request to confirm a rideshare based trip. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ reservation_status
+ rideshare_selection_number
+ traveler_identity

traveler_rideshare_constraints

This data flow is used within the Provide Driver and Traveler Services function to provide details of the constraints for a rideshare being requested as part of a traveler's proposed trip. It consists of the following data items each of which is defined in its own DDE:

constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_special_needs
+ constraint_on_avo_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type

traveler_rideshare_data

This data flow is used within the Provide Driver and Traveler Services function to provide details about a rideshare requested as part of a traveler's proposed trip. It consists of the following data items each of which is defined in its own DDE:

origin
+ destination
+ departure_time
+ desired_arrival_time

traveler_rideshare_preferences

This data flow is used within the Provide Driver and Traveler Services function to provide details of the preferences for a rideshare being requested as part of a traveler's proposed trip. It consists of the following data items each of which is defined in its own DDE:

preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ preferred_ridesharing_options

traveler_rideshare_request

This data flow is used within the Provide Driver and Traveler Services function to request a rideshare as part of a traveler's proposed trip request. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ traveler_rideshare_data
+ traveler_rideshare_preferences
+ traveler_rideshare_constraints

traveler_rideshare_request_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about the requests for rideshare as part of a traveler's proposed trip request. It consists of the following data item which is defined in its own DDE:

list_size{traveler_rideshare_request}

traveler_roadside_credit_identity

This data flow is sent from the Provide Electronic Payments Services function to the Provide Driver and Traveler Services function and contains the credit identity of a traveler using a roadside facility such as a kiosk. It is obtained as data input from the traveler card / payment instrument terminator and consists of the following data item which is defined in its own DDE:

credit_identity

traveler_roadside_credit_identity_for_transit

This data flow is sent from the Provide Electronic Payments Services function to the Manage Transit function and contains the credit identity of a traveler at the roadside, i.e. a transit stop. It is obtained as data input from the traveler card / payment instrument terminator and consists of the following data item which is defined in its own DDE:

credit_identity

traveler_roadside_data

This data flow is sent from the Provide Electronic Payments Services function to the Provide Driver and Traveler Services function and contains cost data and information about travelers using on-line kiosk devices. It consists of the following data item which is defined in its own DDE:

traveler_roadside_credit_identity
+ traveler_roadside_personal_information

traveler_roadside_data_update

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function. It contains cost data and updates to traveler information for travelers using a kiosk device. The data flow includes the following data items each of which is defined in its own DDE:

traveler_roadside_trip_costs
+ traveler_roadside_personal_information_update

traveler_roadside_fare

This data flow is used within the Manage Transit function and contains details of the transit service that the traveler at the roadside, i.e. at a transit stop, is going to use and the required fare for using this service. It consists of the following data items each of which is defined in its own DDE:

transit_fare
+ traveler_roadside_tag_identity

traveler_roadside_image
This data flow is sent from the Manage Transit function to the Provide Electronic Payment Services function. It contains an JPEG compressed image of the traveler who has violated the transit fare collection process at the roadside, i.e. at a transit stop. The data will be used in subsequent transit fare violation processing.

traveler_roadside_information
This data flow contains the traveler's destination for the ride that is being requested. The destination will be provided as a character string, from which the identity of the transit route segment that is at that point can be determined.

traveler_roadside_payment_response
This data flow is used within the Manage Transit function to provide an indication for output to the traveler at the roadside, i.e. a transit stop, that the previously submitted fare payment has been accepted or not.

traveler_roadside_personal_information
This data flow contains information about the traveler using a kiosk device that may be used by ITS functions to identify travelers (e.g. name, address, etc.) and their traveling preferences (e.g. mode choices historical information, traveler profile data).

traveler_roadside_personal_information_update
This data flow contains updates concerning a traveler using a kiosk device to access ITS functions. This information may include updates to the traveler's personal information as they change addresses, update traveling history, or their profile.

traveler_roadside_processed_fare_data
This data flow is used within the Manage Transit function and contains details of the transit service that the traveler at the roadside, i.e. a transit stop, is going to use and the required fare for using this service. It consists of the following data items each of which is defined in its own DDE:

transit_fare
+ transit_route_number
+ transit_route_segment_number
+ transit_route_use_time
+ traveler_category

traveler_roadside_ride
This data flow is used within the Manage Transit function and contains details of the transit service that the traveler at the roadside, i.e. at a transit stop, is going to use so that the fare for this service can be calculated. It consists of the following data items each of which is defined in its own DDE:

traveler_journey_end
+ traveler_journey_start
+ transit_route_use_time
+ traveler_category
+ traveler_roadside_tag_identity

traveler_roadside_ride_data
This data flow is used within the Manage Transit function and contains details of the transit service that the traveler at the roadside, i.e. a transit stop, is going to use. It consists of the following data items each of which is defined in its own DDE:

traveler_journey_end
+ traveler_journey_start
+ transit_route_use_time
+ traveler_category
+ traveler_roadside_tag_identity

traveler_roadside_tag_data
This data flow is used within the Provide Electronic Payment Services function and contains the data that has been provided by the traveler card / payment instrument being used by the traveler at the roadside. This may be either a credit identity, or the value of the credit currently stored by the traveler card / payment instrument, to which transit fares may be charged. The data flow consists of the following items each of which is defined in its own DDE:

credit_identity
+ stored_credit

traveler_roadside_tag_identity
This data is used within the Manage Transit function. It provides the identity of a traveler, at the roadside, i.e. at a transit stop, for fare payment. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ traveler_identity

traveler_roadside_trip_costs
This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function. It contains the cost of a traveler's trip based on a previous trip request and confirmation input by the traveler from a roadside unit such as a kiosk. This cost is to be deducted from the credit currently stored on the traveler's traveler card / payment

instrument. The data flow includes the following data items each of which is defined in its own DDE:

kiosk_identity
+ stored_credit
+ traveler_total_trip_cost

traveler_route

This data flow is used within the Provide Driver and Traveler Services function and is a special form of 'route' for traveler guidance only. It contains a subset of the data items included in the 'route' data flow to meet the requirements of on-line traveler guidance as opposed to the more general requirements for a route need as part of a trip planning activity. The data flow consists of the following data items each of which is defined in its own DDE:

route_segment_number{route_segment_description
+ route_segment_end_point
+ route_segment_estimated_travel_time
+ route_segment_mode
+ route_segment_report_position_points
+ route_segment_start_point}

traveler_route_accepted

This data flow is used within the Provide Driver and Traveler Services function and contains the acceptance by the traveler of the previously provided route for on-line infrastructure based guidance. Acceptance must be provided before guidance can begin. The data flow consists of the following data item which is defined in its own DDE:

route_identity

traveler_route_guidance_data_attributes

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data attribute information to the data archive about the routes used by travelers using dynamic guidance. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

traveler_route_guidance_data_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about requests and acceptance by travelers of a route for on-line infrastructure based guidance. This data flow consists of the following data item which is defined in its own DDE:

list_size{traveler_route_request
+ traveler_route_accepted}

traveler_route_request

This data flow is used within the Provide Driver and Traveler Services function and contains data from which the route requested by a traveler can be determined, or that the previously provided data has been accepted. It consists of the following data items each of which is defined in its own DDE:

origin
+ destination
+ desired_arrival_time
+ modes
+ preferred_routes
+ preferred_alternate_routes
+ preferred_ridesharing_options

+ preferred_route_segments
+ preferred_transit_options
+ constraint_on_acceptable_travel_time
+ constraint_on_number_of_mode_changes
+ constraint_on_number_of_transfers
+ constraint_on_eta_change
+ constraint_on_special_needs
+ traveler_route_accepted
+ traveler_identity
+ traveler_location

traveler_secure_area_audio

This data flow is used within the Manage Emergency Services function and contains the direct audio output of surveillance equipment in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ surveillance_device_type_identity
+ secure_audio

traveler_secure_area_audio_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the direct audio output of surveillance equipment in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ surveillance_device_type_identity
+ secure_audio

traveler_secure_area_broadcast_message

This data flow contains textual or audio information for travelers in secure areas such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. The information will be sent out as part of the response to an emergency or incident being detected within the network.

traveler_secure_area_field_proc_parameters

This data flow is used within the Manage Emergency Services function and contains the information required to control the sensor and surveillance data processing occurring in the field. This data is collected from secure areas frequented by travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, etc.). The data flow consists of the following data items each of which is defined in its own DDE:

traveler_surveillance_field_proc_parameters
+ traveler_sensor_field_proc_parameters

traveler_secure_area_images

This data flow is used within the Manage Emergency Services function and contains the direct high-resolution digitized image output of surveillance equipment in secure areas in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ surveillance_device_type_identity
+ secure_video_image

traveler_secure_area_images_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the direct high-resolution digitized image output of surveillance equipment in secure areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ surveillance_device_type_identity
+ secure_video_image

traveler_secure_area_sensor_threat_data

This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from sensor systems in secure areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. This data is collected from threat sensors, object detection sensors, and intrusion and motion sensors, and could include an alarm indicating that a threshold has been met or a data pattern recognized. The data flow consists of the following data items each of which is defined in its own DDE:

sensor_threat_data
+ location_identity

traveler_secure_area_surveillance_control

This data flow is used within the Manage Emergency Services function and contains control parameters for closed circuit television (cctv) and audio systems located in a secure area frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_video_control
+ secure_area_audio_control

traveler_secure_area_surveillance_status

This data flow is used within the Manage Emergency Services function and contains operational status (state of the device, configuration, and fault data) information from closed circuit television (cctv) and audio systems located in a secure area frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. This data flow contains an indication that a fault has been found with the collection of video or audio data by the device. The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_video_status
+ secure_area_audio_status

traveler_secure_area_surveillance_threat_data

This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from surveillance systems in secure areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. This data could include an alarm indicating that a threshold has been met or an audio or video pattern recognized. The data flow consists of the following data items each of which is defined in its own DDE:

surveillance_threat_data
+ location_identity

traveler_secure_area_threat_data

This data flow contains the threat data including threats detected, threshold alarms, and verified threats in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. It consists of the following data items each of which is defined in its own DDE:

traveler_secure_area_sensor_threat_data
+ traveler_secure_area_surveillance_threat_data

traveler_sensor_control

This data flow contains control parameters for sensors located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. It consists of the following data items each of which is defined in its own DDE:

traveler_threat_sensor_control
+ traveler_object_detection_sensor_control
+ traveler_intrusion_motion_sensor_control

traveler_sensor_data

This data flow contains the direct output of sensors as well as the processed output of sensors located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. It consists of the following data items each of which is defined in its own DDE:

traveler_threat_sensor_data
+ field_processed_traveler_threat_sensor_data
+ traveler_object_detection_sensor_data
+ field_processed_traveler_object_detection_sensor_data
+ traveler_intrusion_motion_sensor_data
+ field_processed_traveler_intrusion_motion_sensor_data

traveler_sensor_field_proc_parameters

This data flow contains parameters to define how the sensor data collected from secure areas (frequented by travelers, such as transit stops, rest areas, park and ride lots, etc.) is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing in the field and include threat sensors, intrusion and motion detection sensors, and object detection sensors.

traveler_sensor_status

This data flow contains the status of sensors located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. This status includes of the configuration of the device and an indication of any device faults. It consists of the following data items each of which is defined in its own DDE:

traveler_threat_sensor_status
+ traveler_object_detection_sensor_status
+ traveler_intrusion_motion_sensor_status

traveler_service_map_data

This data flow is used by processes in the Provide Driver and Traveler Services function as a source of digitized data on the physical layout of the road and highway network. This is provided by the map update provider which is a specialist supplier of this type of data that is outside of ITS. The data consists of the following items each of which is defined in its own DDE:

map_digitized_data
+ map_link_identity_data
+ map_gazetteer_data
+ map_transit_data
+ map_hri_data

traveler_surveillance

This data flow is used within the Manage Emergency Services function and contains the direct video and audio output of surveillance equipment as well as the processed output of that equipment in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_secure_area_images
+ field_processed_traveler_secure_area_images
+ traveler_secure_area_audio
+ field_processed_traveler_secure_area_audio

traveler_surveillance_field_proc_parameters

This data flow contains parameters to define how the surveillance data collected from secure areas (frequented by travelers, such as transit stops, rest areas, park and ride lots, etc.) is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing in the field.

traveler_telecomm_emergency_information_request

This data flow is used within the Provide Remote Traveler Services function and contains a request for alerts, evacuation information, and other emergency information by a traveler via a voice-based telecomm provider. It consists of the following item which is defined in its own DDE:

information_request_id
+ region_identity
+ emergency_information_request

traveler_telecomm_emergency_traveler_information

This data flow contains emergency information to be disseminated to the traveler via a voice-based telecomm provider. This data flow consists of the following items each of which is defined in its own DDE:

care_facility_status_for_isp
+ incident_details_from_media
+ shelter_information_to_travelers
+ emergency_travel_service_update
+ traffic_incident_data_for_isp
+ other_isp_emergency_data

traveler_telecomm_evacuation_traveler_information

This data flow contains evacuation information to be disseminated to the traveler via a voice-based telecomm provider. This data flow consists of the following item which is defined in its own DDE:

evacuation_data_for_isp

traveler_telecomm_event_information_request

This data flow contains a request for event information from a traveler telephone information system. It consists of the following items each of which is defined in its own DDE:

event_information_request
+ information_request_id
+ region_identity

traveler_telecomm_incident_information_request

This data flow contains a request for incident information from a traveler telephone information system. It consists of the following items each of which is defined in its own DDE:

incident_information_request
+ information_request_id
+ region_identity

traveler_telecomm_information_request

This data flow is used within the Provide Traveler Information Services function and contains a request for traffic, transit, incidents, and other traveler information by a traveler from a traveler telephone information system. It consists of the following items each of which is defined in its own DDE:

traveler_telecomm_traffic_data_request
+ traveler_telecomm_transit_data_request
+ traveler_telecomm_incident_information_request
+ traveler_telecomm_weather_data_request
+ traveler_telecomm_event_information_request

+ traveler_telecomm_parking_data_request
+ traveler_telecomm_multimodal_data_request
+ traveler_telecomm_price_data_request

traveler_telecomm_interactive_border_data
This data flow contains border crossing information to be disseminated to a traveler telephone information system. This data flow consists of the following item which is defined in its own DDE:

border_data_for_interactive

traveler_telecomm_interactive_event_information
This data flow contains event information, processed for traveler consumption, to be disseminated to a traveler telephone information system. This data flow consists of the following item which is defined in its own DDE:

event_information_for_interactive

traveler_telecomm_interactive_incident_information
This data flow contains incident information, processed for traveler consumption, to be disseminated to a traveler telephone information system. This data flow consists of the following item which is defined in its own DDE:

incident_information_for_interactive

traveler_telecomm_interactive_multimodal_data
This data flow contains multimodal travel services information, processed for traveler consumption, to be disseminated to a traveler telephone information system. This data flow consists of the following item which is defined in its own DDE:

multimodal_data_for_interactive

traveler_telecomm_interactive_parking_data
This data flow contains parking information, processed for traveler consumption, to be disseminated to a traveler telephone information system. This data flow consists of the following item which is defined in its own DDE:

parking_data_for_interactive

traveler_telecomm_interactive_price_data
This data flow contains price information, processed for traveler consumption, to be disseminated to a traveler telephone information system. This data flow consists of the following item which is defined in its own DDE:

price_data_for_interactive

traveler_telecomm_interactive_traffic_data
This data flow contains traffic information, processed for traveler consumption, to be disseminated to a traveler telephone information system. This data flow consists of the following item which is defined in its own DDE:

traffic_data_for_interactive

traveler_telecomm_interactive_transit_data
This data flow contains transit information, processed for traveler consumption, to be disseminated to a traveler telephone information system. This data flow consists of the following item which is defined in its own DDE:

transit_data_for_interactive

traveler_telecomm_interactive_weather_data
This data flow contains weather information, processed for traveler consumption, to be disseminated to a traveler telephone information system. This data flow consists of the following item which is defined in its own DDE:

weather_data_for_interactive

traveler_telecomm_multimodal_data_request
This data flow contains a request for multimodal travel services information from a traveler telephone information system. It consists of the following items each of which is defined in its own DDE:

multimodal_data_request
+ information_request_id
+ region_identity

traveler_telecomm_parking_data_request
This data flow contains a request for parking information from a traveler telephone information system. It consists of the following items each of which is defined in its own DDE:

parking_data_request
+ information_request_id
+ region_identity

traveler_telecomm_price_data_request

This data flow contains a request for price information from a traveler telephone information system. It consists of the following items each of which is defined in its own DDE:

price_data_request
+ information_request_id
+ region_identity

traveler_telecomm_traffic_data_request

This data flow contains a request for traffic information from a traveler telephone information system. It consists of the following items each of which is defined in its own DDE:

traffic_data_request
+ information_request_id
+ region_identity

traveler_telecomm_transit_data_request

This data flow contains a request for transit information from a traveler telephone information system. It consists of the following items each of which is defined in its own DDE:

transit_data_request
+ information_request_id
+ region_identity

traveler_telecomm_transportation_system_status

This data flow is used to communicate the general status of the transportation system to a traveler via a voice-based telecomm provider. The data flow consists of the following data items each of which is defined in its own DDE:

disaster_transportation_system_status
+ evacuation_transportation_system_status

traveler_telecomm_travel_services_data

This data flow is used within the Provide Driver and Traveler Services function and contains details of other travel services which are to be sent to a 511-type traveler information system. The data flow consists of the following data items each of which is defined in its own DDE:

travel_services_general_information
+ travel_services_specific_information
+ region_identity
+ information_request_id

traveler_telecomm_travel_services_data_request

This data flow is used within the Provide Driver and Traveler Services function and contains a request for data on other travel services to be sent to a 511-like traveler information system for the region specified. The data flow consists of the following data items each of which is defined in its own DDE:

travel_services_data_request
+ region_identity
+ information_request_id

traveler_telecomm_weather_data_request

This data flow contains a request for weather information from a traveler telephone information system. It consists of the following items each of which is defined in its own DDE:

weather_data_request
+ information_request_id
+ region_identity

traveler_telecomm_wide_area_alert_information

This data flow contains wide area alert information pertaining to a major emergency such as a natural or man-made disaster, civil emergency, severe weather, or child abduction to be disseminated to travelers via a voice-based telecomm provider. This data flow consists of the following data item which is defined in its own DDE:

wide_area_alert_notification_for_travelers

traveler_threat_sensor_control

This data flow provides control commands for threat sensors (e.g., thermal, acoustic, radiological, chemical) located in areas frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, etc.). It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ threat_sensor_control_data}

traveler_threat_sensor_data

This data flow contains actual sensor readings collected from threat sensors (e.g., thermal, acoustic, radiological, chemical) located in areas typically frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ threat_sensor_data_collected}

traveler_threat_sensor_data_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from threat sensors (e.g., thermal, acoustic, radiological, chemical) located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ threat_sensor_data_collected

traveler_threat_sensor_status

This data flow is used within the Manage Emergency Services function to report the operational status (state of the sensor device, configuration, and fault data) of a threat sensor (e.g., thermal, acoustic, radiological, chemical) located in areas frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, etc.). By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_device_status}

traveler_to_m_and_c

This DFD flow represents the data flows from Provide Driver and Traveler Services to Manage Maintenance and Construction. The DFD flow consists of the following data flows each of which is defined in its own DDE:

env_probe_info_from_isp_for_maint
+ transportation_information_for_maint_operations
+ trav_info_equip_status_for_m_and_c
+ field_equipment_status_from_isp

traveler_total_trip_cost

This data flow contains the total cost of a traveler's trip. This will be a trip that has been previously confirmed by the traveler from either a personal device, vehicle, or a kiosk, and for which where necessary, reservations have been made. The cost is stored to give a sensible value bearing in mind that it could include the cost of number of services, not least of which may be multimodal transport, such as those provided by airlines. It will be deducted from the credit currently stored on the traveler's traveler card / payment instrument.

traveler_traffic_data_request

This data flow contains a request for traffic information by a traveler from a kiosk. It consists of the following items each of which is defined in its own DDE:

kiosk_identity
+ traffic_data_request

traveler_traffic_information_data

This data store is used within the Provide Driver and Traveler Services function to hold data about traffic that may be requested as advisory information by drivers or travelers (including users of the transit system) from within a vehicle. The traffic data may be used to provide input for both local and wide area broadcast information output. The data is exchanged between the store and a process for amalgamation with new data that has been obtained from the Manage Traffic function. The data store contains the following data items each of which is defined in its own DDE:

planned_events
+ prediction_data
+ traffic_data_for_advisory_output

traveler_transaction_buffer

This data store is used within the Manage Traffic function and contains batched records of on-vehicle fare transactions. These records are transmitted from the transit vehicle to the infrastructure for 'back-end' processing at a convenient time. The store contains approximately one operating shift's volume of transaction_records and consists of the following data items each of which is defined in its own DDE:

list_size{traveler_transaction_record}

traveler_transaction_confirmation

This data flow is used within the Provide Driver and Traveler Services function to confirm any reservations made by the traveler

from a kiosk. These reservations will be based on information obtained by the traveler from previous data input and output through the kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ kiosk_identity
+ transaction_number
+ travel_services_cost
+ travel_services_lodging_reservation_confirmation
+ travel_services_dining_reservation_confirmation
+ travel_services_ticket_purchase_confirmation

traveler_transaction_record

This data flow is used to record a request for payment processing of a transit fare transaction from on-board a transit vehicle. This flow provides for batch (low value/ high usage) fare transaction (e.g., city bus routes) processing. The flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ transit_fare
+ transit_route_number
+ transit_route_segment_number
+ transit_route_use_time
+ traveler_category
+ traveler_identity

traveler_transaction_request

This data flow is used within the Provide Driver and Traveler Services function and contains data input by the traveler at a kiosk to make reservations for various other travel services. It contains the following data items, each of which is defined in its own DDE:

traveler_identity
+ travel_services_transaction_request

traveler_transit_data_request

This data flow contains a request for transit information by a traveler from a kiosk. It consists of the following items each of which is defined in its own DDE:

kiosk_identity
+ transit_data_request

traveler_transit_information

This data flow is sent from Manage Transit to the Manage Transit Vehicle function and contains the contents of the store of transit data used to provide input for both local and wide area broadcast information output concerning route and schedule deviations and ETA. The data is sent from a process in the Provide Driver and Traveler Services function that manages the store following its update with new data that has been obtained from the Manage Transit function. The data flow consists of the following data item which is defined in its own DDE:

traveler_transit_information_data

traveler_transit_information_advisory_data

This data flow is used within the Provide Driver and Traveler Services function and contains the contents of the store of transit data used to support traveler services. The data flow consists of the following data items each of which is defined in its own DDE:

transit_services
+ trmc_list

traveler_transit_information_data

This store is used within the Provide Driver and Traveler Services function to hold data about transit that may be requested as advisory information by drivers or travelers (including users of the transit system) from within a vehicle. The transit data may be used to provide input for both local and wide area broadcast information output. The data is exchanged between the store and a process for amalgamation with new data that has been obtained from the Manage Transit function. The data store contains the following data items each of which is defined in its own DDE:

transit_services_for_advisory_data
+ transit_running_data_for_advisory_output

traveler_transit_information_for_transit_advisories

This data flow is used within the Provide Driver and Traveler Services function and contains the contents of the store of transit data used to provide input for both local and wide area broadcast information output. The data will be used to provide advisory information on the transit vehicle. The data is being sent from a process that manages the store following its update with new data that has been obtained from the Manage Transit function. The data flow consists of the following data item which is defined in its own DDE:

traveler_transit_information_data

traveler_transportation_system_status

This data flow is used to communicate the general status of the transportation system to a traveler using a kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

disaster_transportation_system_status
+ evacuation_transportation_system_status

traveler_travel_services_data

This data flow is used within the Provide Driver and Traveler Services function and contains data to be sent to the traveler interface facility for output using a kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_travel_services_provider_data
+ traveler_broadcast_traffic_data
+ traveler_broadcast_transit_data
+ traveler_broadcast_incident_information
+ traveler_broadcast_weather_data
+ traveler_broadcast_event_information
+ traveler_broadcast_parking_data
+ traveler_broadcast_border_data
+ traveler_broadcast_multimodal_data
+ traveler_broadcast_price_data
+ traveler_interactive_traffic_data
+ traveler_interactive_transit_data
+ traveler_interactive_incident_information
+ traveler_interactive_weather_data
+ traveler_interactive_event_information
+ traveler_interactive_parking_data
+ traveler_interactive_border_data
+ traveler_interactive_multimodal_data
+ traveler_interactive_price_data

traveler_travel_services_data_request

This data flow is used within the Provide Driver and Traveler Services function and contains a request for data on other travel services to be provided to a traveler at the identified kiosk. This request will also be used to sort and filter the data. The data flow consists of the following items each of which is defined in its own DDE:

kiosk_identity
+ travel_services_provider_data_request

traveler_travel_services_provider_data

This data flow is used within the Provide Driver and Traveler Services function and contains details of other travel services which are to be sent to the traveler interface facility for output using a kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

kiosk_identity
+ travel_services_general_information
+ travel_services_specific_information
+ travel_services_transaction_information

traveler_travel_services_provider_requests

This data flow is used within the Provide Driver and Traveler Services function to transfer requests for travel services provider information from the traveler kiosk interface facility to the travel services provider data collection facility. It consists of the following data items each of which is defined in its own DDE:

traveler_payment_information_for_services
+ traveler_transaction_request
+ traveler_travel_services_data_request

traveler_travel_services_requests

This data flow is used within the Provide Driver and Traveler Services function and contains a request for information from a traveler at a kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_travel_services_provider_requests
+ traveler_information_request
+ traveler_emergency_information_request

traveler_trip_confirmation

This data flow is used within the Provide Driver and Traveler Services function to confirm the trip details provided as the result of a traveler's previous trip request input from a kiosk. It contains the following data items each of which is defined in its own DDE:

paratransit_service_confirmation
+ traveler_identity
+ traveler_rideshare_confirmation
+ traveler_parking_confirmation

traveler_trip_confirmation_information

This data flow is used within the Provide Driver and Traveler Services function and contains data confirming various aspects of a traveler's trip. It is sent as a result of a traveler previously requesting confirmation of a trip, the details of which were provided in response to data inputs from the traveler to the kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_payment_confirmation
+ traveler_trip_information

traveler_trip_information

This data flow is used within the Provide Driver and Traveler Services function and contains information about a proposed trip that the traveler has requested earlier from the kiosk. It consists of the following data items each of which is defined in its own DDE:

current_conditions
+ kiosk_identity
+ paratransit_personal_schedule
+ parking_lot_availability
+ rideshare_response
+ route
+ route_cost

traveler_trip_planning_requests

This data flow is used within the Provide Driver and Traveler Services function and contains data that the traveler has provided through a kiosk so that a trip can be planned or general travel information provided. It consists of the following data items each of which is defined in its own DDE, all of which may not be present in any one data flow:

kiosk_identity
+ traveler_information_request
+ traveler_trip_request
+ traveler_trip_confirmation
+ traveler_payment_information
+ traveler_payment_information_for_services
+ traveler_travel_services_data_request
+ traveler_transaction_request
+ traveler_emergency_information_request
+ traveler_vmt_payment_info_from_trav
+ traveler_vmt_account_setup_info_from_trav

traveler_trip_planning_responses

This data flow is used within the Provide Driver and Traveler Services function and contains the responses to various requests for information and trip planning services previously input by a traveler from a kiosk. The data will only cover those services needed to fulfill the traveler's trip or information request. If the previous input from the traveler was a trip confirmation, the data will include either the credit identity or stored credit value originally supplied by the traveler's payment instrument. The data flow consists of the following data items each of which is defined in its own DDE:

kiosk_identity
+ traveler_trip_information
+ traveler_payment_confirmation
+ traveler_transaction_confirmation
+ traveler_interactive_traffic_data
+ traveler_interactive_transit_data
+ traveler_interactive_incident_information
+ traveler_interactive_weather_data
+ traveler_interactive_event_information
+ traveler_interactive_parking_data
+ traveler_interactive_multimodal_data
+ traveler_interactive_price_data
+ traveler_travel_services_provider_data
+ traveler_vmt_account_reports_to_trav
+ traveler_vmt_payment_request_to_trav

traveler_trip_request

This data flow is used within the Provide Driver and Traveler Services function and contains data about a traveler's trip request which has been input from a kiosk. It consists of the following data items each of which is defined in its own DDE:

trip_request
+ kiosk_identity
+ rideshare_request
+ parking_request

traveler_vehicle_fare

This data flow is used within the Manage Transit function and contains details of the transit service that the traveler on a transit vehicle is going to use and the required fare for using this service. It consists of the following data items each of which is defined

in its own DDE:

transit_fare
+ traveler_vehicle_tag_identity

traveler_vehicle_image
This data flow is sent from the Manage Transit function to the Provide Electronic Payment Services function. It contains a compressed image of the traveler who has violated the transit fare collection process on-board a transit vehicle. The data will be used in subsequent transit fare violation processing.

traveler_vehicle_information
This data flow is used within the Manage Transit function and contains information about other services requested by a traveler on-board a transit vehicle as well as the location of the transit vehicle they are currently riding. These other services include what are called 'yellow pages' services, e.g. hotels, restaurants, theaters, etc. This item consists of the following element which is defined in its own DDE:

transit_vehicle_location

traveler_vehicle_payment_response
This data flow is used within the Manage Transit function to provide an indication for output to the traveler on-board a transit vehicle that the previously submitted fare payment has been accepted or not.

traveler_vehicle_processed_fare_data
This data flow is used within the Manage Transit function and contains details of the transit service that the traveler on-board a transit vehicle is going to use and the required fare for using this service. It consists of the following data items each of which is defined in its own DDE:

transit_fare
+ traveler_vehicle_tag_identity

traveler_vehicle_ride
This data flow is used within the Manage Transit function and contains details of the transit service that the traveler on a transit vehicle is going to use so that the fare for this service can be calculated. It consists of the following data items each of which is defined in its own DDE:

traveler_journey_end
+ traveler_journey_start
+ transit_route_use_time
+ traveler_category
+ traveler_vehicle_tag_identity

traveler_vehicle_ride_data
This data flow is used within the Manage Transit function. It contains details of the transit service that the traveler on a transit vehicle is going to use. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_use_time
+ traveler_category
+ traveler_journey_end
+ traveler_journey_start
+ traveler_vehicle_tag_identity

traveler_vehicle_tag_data
This data flow is used within the Provide Electronic Payment Services function and contains the data that has been provided by the traveler card / payment instrument being used by the traveler on-board a transit vehicle. This may be either a credit identity, or the value of the credit currently stored by the traveler card / payment instrument, to which transit fares may be charged. The data flow consists of the following items each of which is defined in its own DDE:

credit_identity
+ stored_credit

traveler_vehicle_tag_identity
This data is used within the Manage Transit function and provides the identity of a traveler on a transit vehicle for fare payment. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ traveler_identity

traveler_vmt_account_reports
This data flow is used within the Provide Open Road Tolling function and passed to other processes for output to travelers at kiosks. It contains reports of Vehicle Miles Traveled (VMT) road use charging activity.

traveler_vmt_account_reports_to_trav
This data flow is sent from the Provide Open Road Tolling function to the Provide Driver and Traveler Services function and passed

to other processes for output to travelers at kiosks. It contains reports of Vehicle Miles Traveled (VMT) road use charging activity.

traveler_vmt_account_setup_info
This data flow is used within the Provide Open Road Tolling function and input from travelers at kiosks via other processes. It contains account setup information (associate an account with a vehicle owner and vehicle DMV registration) for Vehicle Miles Traveled (VMT) road use charges.

traveler_vmt_account_setup_info_from_trav
This data flow is sent from the Provide Driver and Traveler Services function to the Provide Open Road Tolling function and input from travelers at kiosks via other processes. It contains account setup information (associate an account with a vehicle owner and vehicle DMV registration) for Vehicle Miles Traveled (VMT) road use charges.

traveler_vmt_payment_info
This data flow is used within the Provide Open Road Tolling function and input from travelers at kiosks via other processes. It contains payment information for Vehicle Miles Traveled (VMT) road use charges.

traveler_vmt_payment_info_from_trav
This data flow is sent from the Provide Driver and Traveler Services function to the Provide Open Road Tolling function and input from travelers at kiosks via other processes. It contains payment information for Vehicle Miles Traveled (VMT) road use charges.

traveler_vmt_payment_request
This data flow is used within the Provide Open Road Tolling function and passed to other processes for output to travelers at kiosks. It contains requests for payment of road use charges (Vehicle Miles Traveled - VMT).

traveler_vmt_payment_request_to_trav
This data flow is sent from the Provide Open Road Tolling function to the Provide Open Road Tolling function and passed to other processes for output to travelers at kiosks. It contains requests for payment of road use charges (Vehicle Miles Traveled - VMT).

traveler_weather_data_request
This data flow contains a request for weather information by a traveler from a kiosk. It consists of the following items each of which is defined in its own DDE:

kiosk_identity
+ weather_data_request

traveler_wide_area_alert_information
This data flow contains wide area alert information pertaining to a major emergency such as a natural or man-made disaster, civil emergency, severe weather, or child abduction for output to a traveler using a kiosk. This data flow consists of the following data item which is defined in its own DDE:

wide_area_alert_notification_for_travelers

trip_confirmations_for_personnel
This data flow is used within the Provide Driver and Traveler Services function to provide the ISP Operator with the trips confirmed by travelers, including those requesting trips via kiosks, personal devices, and vehicles. It consists of the following data items each of which is defined in its own DDE:

list_size{multimodal_service_confirmation
+ rideshare_confirmation
+ paratransit_route_confirm
+ traveler_personal_trip_confirmation
+ traveler_trip_confirmation
+ vehicle_trip_confirmation
+ parking_lot_reservation_confirm}

trip_information
This data store is maintained within the Provide Driver and Traveler Services function and contains information about travelers' trip requests for use if and when they are confirmed. It consists of the following data items each of which is defined in its own DDE:

list_size{traveler_trip_request
+ traveler_trip_information
+ traveler_personal_trip_request
+ traveler_personal_trip_information
+ vehicle_trip_request
+ vehicle_trip_information
+ profiles_for_trip_planning}

trip_planning_confirmations_attributes
This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data attribute information to the data archive about trip planning confirmations input by the traveler. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions

+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

trip_planning_confirmations_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about the confirmation of trip details provided as the result of a traveler's previous trip request input from a vehicle, personal device or kiosk. It consists of the following data items each of which is defined in its own DDE:

list_size{multimodal_service_confirmation
+ rideshare_confirmation
+ paratransit_route_confirm
+ traveler_personal_trip_confirmation
+ traveler_trip_confirmation
+ vehicle_trip_confirmation
+ parking_lot_reservation_confirm}

trip_planning_data

This data flow is used within the Provide Driver and Traveler Services function to transfer data between the Provide Guidance and Trip Planning Services facility and the Manage Trip Planning and Ridesharing facility, as well as provide route information to the data archive. It consists of the following data items each of which is defined in its own DDE:

paratransit_route_request
+ paratransit_route_confirm
+ supplied_route

trip_planning_map_data

This data is used by processes in the Provide Driver and Traveler Services function as a source of digitized data on the physical layout of the road and highway network. This is provided by the map update provider which is a specialist supplier of this type of data that is outside of ITS. It consists of the following data items each of which is defined in its own DDE:

map_digitized_data
+ map_link_identity_data
+ map_gazetteer_data
+ map_transit_data
+ map_hri_data

trip_planning_parameters

This data store is used within the Provide Driver and Traveler Services function and contains parameters used for trip planning.

trip_planning_requests_attributes

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data attribute information to the data archive about trip planning requests. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status

+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

trip_planning_requests_for_archive

This data flow is used within the Provider Driver and Traveler Services function. It is used to provide data to the data archive about requests made for trips and for ridesharing via a personal device, kiosk, or vehicle. It consists of the following data items each of which is defined in its own DDE:

trip_request_for_archive
+ traveler_rideshare_request_for_archive

trip_planning_requests_to_isp_data_collectors

This DFD flow passes the requests for data to support the Trip Planning application to the ISP Data Collection function. It consists of the following items each of which is defined in its own DDE:

traffic_data_request_from_trip_planning
+ transit_data_request_from_trip_planning
+ parking_data_request_from_trip_planning
+ multimodal_data_request_from_trip_planning
+ request_trip_planning_map_update
+ weather_data_request_from_trip_planning

trip_request

This data flow is used within the Provide Driver and Traveler Services function as a means of specifying the parameters needed for a trip or route to be provided to a driver or traveler. It consists of the following data items each of which is defined in its own DDE:

origin
+ destination
+ departure_time
+ desired_arrival_time
+ preferences
+ constraints

trip_request_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about the parameters needed for a trip or route to be provided to a driver or traveler. It consists of the following data items each of which is defined in its own DDE:

list_size{origin
+ destination
+ departure_time
+ desired_arrival_time
+ preferences
+ constraints}

trip_requests_for_personnel

This data flow is used within the Provide Driver and Traveler Services function to provide the ISP Operator with the trips requested by travelers, including those requesting trips via kiosks, personal devices, and vehicles. It consists of the following data items each of which is defined in its own DDE:

list_size{origin
+ destination
+ departure_time
+ desired_arrival_time
+ preferences
+ constraints}

trip_route_request

This data flow is used within the Provide Driver and Traveler Services function as a means of specifying the parameters needed for a route to be provided to support an overall trip plan requested by a driver or traveler. It consists of the following data item which is defined in its own DDE:

trip_request

trmc_identity

This data item is used within the Manage Transit function and defines the logical identifier of an interfacing peer Transit Management Center (TRMC) to share transit data and system status. Other centers may be on-line to coordinate transit

operations to promote mobility and coordination. Security safeguards are employed to ensure that unauthorized entities cannot masquerade as a valid TRMC.

trmc_list

This data flow is used within the Manage Transit function and contains a list of Transit Management Centers (TRMC's) from which the accompanying transit data has been obtained for use by the local TRMC. The data flow consists of the following data items each of which is defined by its own DDE:

list_size{trmc_identity}

tro-disaster_response_plan_coordination

This data flow is used to coordinate disaster response and recovery plans with rail operations. It contains information regarding the nature of the disaster, and the preplanned response plan for the rail. Given this information, the rail can than update and provide a plan that it will use that is appropriate for the given disaster. The data flow consists of the following data items which are defined in their own DDE:

emergency_input_for_disaster
+ evacuation_status_for_disaster_response
+ rail_preplanned_disaster_response_plan
+ disaster_transportation_system_status

tro-equipment_status

This data flow contains information about the status of the wayside equipment and the intelligent intersection controller. It is used to pass information to rail operations about the overall health and status of the HRI.

tro-evacuation_information_for_rail

This flow contains information regarding the evacuation for rail operations. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule

tro-evacuation_plan_coordination

This data flow is used to coordinate evacuation plans with rail operations. It contains information regarding the nature of the disaster or incident that has required an evacuation, and the preplanned evacuation plan for rail. Given this information, rail can than update and provide a plan that it will use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

emergency_evacuation_data
+ rail_preplanned_evacuation_plan
+ evacuation_status_report
+ evacuation_transportation_system_status

tro-event_schedules

This data flow contains highway event schedules for use by a rail operator. Typically the rail operator would be interested in highway maintenance at or near grade crossings that may interfere with the rail right-of-way.

tro-incident_information

This data flow is sent from the Manage Emergency Services function to rail operations and contains information that has been requested about incidents. It consists of the following items each of which is defined in its own DDE:

incident_number
+ incident_location
+ incident_start_time
+ incident_duration
+ incident_type
+ incident_severity
+ incident_traffic_impact

tro-incident_notification

This data flow contains a highway incident notification relevant to a rail operator. Typically the rail operator would be interested in highway incidents at or near railroads that may interfere with the safe operation of passing trains (e.g. a HAZMAT spill, equipment failure, or an intersection blockage).

tro-incident_response_status

This data flow provides the current status of an incident response indicating site management strategies in effect, incident clearance status, emergency response plans, the incident command structure that is in place, and points of contact such as the organization name, address, phone number, mobile phone number or fax number.

tro-m_and_c_work_plans_for_rail

This data flow is sent from the Manage Maintenance and Construction function to the Rail Operations. It contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations.

tro-railroad_schedule_feedback

This data flow is sent from the Manage Maintenance and Construction function to the Rail Operations. It contains comments and suggested changes to proposed rail schedules for train and rail maintenance activities.

tro-road_weather_info

This data flow contains environmental and road weather information that has been formatted for distribution to the Rail Operations terminator. The data may be filtered or aggregated prior to this formatting. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

tro-threat_info

This data flow is sent from the Manage Emergency Services function to the Rail Operations terminator and contains information about threats detected in the transportation network. This threat is based on analysis of data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and other emergency centers. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area
+ threat_duration}

tro-transportation_system_status_for_disaster

This data flow consists of a report of the current status of the transportation system. This data is reported to rail operations as an ongoing status during a disaster. The data flow consists of the following data item which is defined in its own DDE:

disaster_transportation_system_status

tro-transportation_system_status_for_evacuation

This data flow consists of a report of the current status of the transportation system. This data is reported to rail operations as an ongoing status during an evacuation. The data flow consists of the following data item which is defined in its own DDE:

evacuation_transportation_system_status

tsf-equipment_availability_request

This data flow is sent from the Manage Maintenance and Construction function to the storage facility, and contains a request for equipment inventory information, including the availability, suitability for use, and current status of equipment at the facility.

tsf-materials_status_request

This data flow is sent from the Manage Maintenance and Construction function to the storage facility, and contains a request for an update on data about the types and quantities of the materials available at the storage facility.

tsp-evacuation_traveler_information

This data flow contains evacuation information to be disseminated to the traveler at a shelter. This data flow consists of the following data items each of which is defined in its own DDE:

evacuation_transit_schedule
+ evacuation_transit_routes
+ evacuation_transit_fares
+ roadway_detours_and_closures
+ evacuation_area
+ evacuation_schedule

tsp-shelter_evacuation_information

This data contains evacuation plans and evacuation status updates for shelter providers. The data flow consists of the following data item which is defined in its own DDE:

emergency_center_identity
+ emergency_evacuation_data
+ evacuation_status_report
+ emergency_evacuation_plan

tsp-shelter_information_request

This data flow contains a request for shelter providers to provide information regarding shelter availability, location, type, and facilities available to support an evacuation.

tstws-archive_request

This data flow from the Manage Archived Data function to the Surface Transportation Weather Service terminator contains the request for data collected and stored by the terminator that may be of interest to archived data users systems that is not included in data from sources within the ITS functions. This data flow includes request for a catalog of the information available as well as the request for the data itself. This data flow consists of the following items each of which is defined in its own DDE:

surface_trans_weather_archive_catalog_request
+ surface_trans_weather_archive_data_request

tstws-asset_treatment_info
This data flow is sent from the Manage Maintenance and Construction function to the Surface Transportation Weather Service and contains basic road facility and treatment information that supports forecasts for road conditions.

tstws-env_info
This data flow contains processed environmental and road weather information. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions

tstws-env_probe_info_from_isp
This data flow is sent from the Provide Driver and Traveler Services function to the Surface Transportation Weather Service terminator and contains aggregated environmental conditions data (measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, ALB status, and other collected vehicle system status and sensor information) collected from ITS-equipped personal vehicles. The data flow consists of the following item which is defined in its own DDE:

vehicle_env_probe_data_aggregation

tstws-env_sensor_data
This data flow provides outputs from a set of environment sensors that are monitored by a the maintenance and construction function. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}

tstws-env_sensor_data_from_traffic
This data flow provides outputs from a set of environment sensors that are monitored by the manage traffic function. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}

tstws-roadway_env_sensor_data
This data flow provides a set of outputs from environment sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output}

tstws-roadway_env_sensor_status
This data flow provides a report of the status of a set of environmental sensor. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which are defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_device_status}

tstws-trans_weather_archive_status
This data flow is sent from the Manage Archived Data function to the Surface Transportation Weather Service terminator. It is the status returned when surface transportation weather archive data is sent from the terminator to the Manage Archived Data function.

tstws-trans_weather_info_request
This data flow contains a request for transportation weather information. This request may specify the area of interest (a geographic area, particular routes within a region, or specific road segments) or the desired type of information (e.g. temperature, roadway visibility). The request may specify observation or forecast information. For forecast information the request may specify the 'scale' of the forecast (i.e. the spatial resolution and time horizon of the forecast).

tstws-vehicle_env_probe_data
This data flow consists of environmental probe data collected at the roadside and is sent to the Surface Transportation Weather Service terminator for further processing to determine environmental conditions. For each vehicle, the data includes unique vehicle identifiers, measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction

control status, ALB status, and other collected vehicle system status and sensor information. Both current data and snapshots of recent events (e.g., traction control or anti-lock brake system activations) may be reported. It consists of the following data items each of which is defined in its own DDE:

list_size
+ station_id
+ list_size {vehicle_env_probe_data}

tstws-vehicle_env_probe_status

This data flow provides the operational status (state of the device, configuration, and fault data) of the vehicle environmental probe field equipment to the Surface Transportation Weather Service terminator. It consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity
+ station_id

tt-advisory_information

This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains displays of the traffic advisory, incident, and stop annunciation information (including affected non-motorized transportation services) produced in response to a previous traveler request.

ttc-debited_driver_payment_at_vehicle

This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the cost of the update to the navigable map database used within a vehicle for on-line driver guidance, or the cost of commercial vehicle electronic credential filing and tax payments, from the value of credit currently stored on the payment instrument being used by the driver.

ttc-debited_fare_payment_at_roadside

This data flow is sent to the traveler card / payment instrument by the Provide Electronic Payment Services function and contains confirmation that the cost of the current transit fare incurred at the roadside, i.e. a transit stop, plus if required the cost of advanced tolls, and/or parking lot charges, and/or transit fares, will be debited to the credit identity provided by the traveler card / payment instrument. The debit transaction will be carried out through the financial institution through other processes within the function.

ttc-debited_payment_at_parking_lot

This data flow is sent to the traveler card / payment instrument by the Provide Electronic Payment Services function and contains confirmation that the cost of the current parking lot charge, plus if required the cost of advanced tolls, and/or parking lot charges, and/or transit fares, will be debited to the credit identity provided by the traveler card / payment instrument. The debit transaction will be carried out through the financial institution through other processes within the function.

ttc-debited_payment_at_personal_device

This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct either the cost of the update to the navigable map database used by the traveler for on-line personal guidance, or the cost of a traveler's confirmed trip from the value of credit currently stored by the traveler card / payment instrument.

ttc-debited_payment_at_toll_plaza

This data flow is sent to the traveler card / payment instrument by the Provide Electronic Payment Services function and contains confirmation that the cost of the current toll, plus if required the cost of advanced tolls, and/or parking lot charges, and/or transit fares, will be debited to the credit identity provided by the traveler card / payment instrument. The debit transaction will be carried out through the financial institution through other processes within the function.

ttc-debited_payment_on_transit_vehicle

This data flow is sent to the traveler card / payment instrument by the Provide Electronic Payment Services function and contains confirmation that the cost of the current transit fare incurred on-board a transit vehicle, plus if required the cost of advanced tolls, and/or parking lot charges, and/or transit fares, will be debited to the credit identity provided by the traveler card / payment instrument. The debit transaction will be carried out through the financial institution through other processes within the function.

ttc-debited_traveler_parking_payment

This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function and contains confirmation that the cost of the current parking lot charge, or if applicable, that for advanced tolls, and/or parking lot charges and/or transit fares will be debited to the credit identity provided by the traveler card. The debit transaction will be carried out through the financial institution through other processes within the function.

ttc-debited_traveler_payment_at_roadside

This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the cost of a traveler's confirmed trip from the value of credit currently stored by the traveler card / payment instrument being used by the traveler.

ttc-debited_traveler_payment_at_roadside_for_transit

This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the cost of advanced payments from the value of credit currently stored by the traveler card / payment instrument belonging being used by a traveler at the roadside, i.e. a transit stop. The advanced payments may cover tolls, and/or parking lot charges, and/or transit fares.

ttc-debited_traveler_payment_at_vehicle
This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the cost of advanced payments from the value of credit currently stored by the traveler card / payment instrument belonging being used by a traveler on-board a transit vehicle. The advanced payments may cover tolls, and/or parking lot charges, and/or transit fares.

ttc-debited_vmt_payment
This data flow is sent from the Provide Open Road Tolling function to the traveler card / payment instrument and contains confirmation that the road use charge will be debited from a cash card or credit/debit card (e.g., for individual vehicle owners, taxis, or rental cars).

ttc-request_fare_payment_at_roadside
This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the total cost of the current transit fare, or if required, that for advanced tolls, and/or parking lot charges and/or transit fares from the credit currently stored by the traveler card / payment instrument when used at the roadside, i.e. a transit

ttc-request_fare_payment_on_transit_vehicle
This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the total cost of the current transit fare, or if required, that for advanced transit fares from the credit currently stored by the traveler card / payment instrument when used on-board a transit vehicle.

ttc-request_payment_at_parking_lot
This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the total cost of the current parking lot charge, or if required, that for advanced parking lot charges from the credit currently stored by the traveler card / payment instrument when used on-board a vehicle at a parking lot.

ttc-request_payment_at_toll_plaza
This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the total cost of the current toll, or if required, that for advanced tolls, from the credit currently stored by the traveler card / payment instrument when used on-board a vehicle at a toll plaza.

ttc-request_traveler_parking_payment
This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the total cost of the current parking lot charge, or if required, that for advanced parking lot charges from the credit currently stored by the traveler card.

ttc-request_vmt_payment
This data flow is sent from the Provide Open Road Tolling function to the traveler card / payment instrument and contains confirmation that the road use charge will be debited from a cash card or credit/debit card mechanism (e.g., for individual vehicle owners, taxis, or rental cars).

ttc-traveler_personal_information_update
This data flow to the Traveler Card terminator contains updates concerning a traveler using a personal device to access ITS functions. This information may include updates to the traveler's personal information as they change addresses, update travel history, or their profile.

ttc-traveler_remote_personal_information_update
This data flow to the Traveler Card terminator contains updates concerning a traveler using a kiosk to access ITS functions. This information may include updates to the traveler's personal information as they change addresses, update travel history, or their profile.

tt-emergency_message
This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains the acknowledgment of a request for action by the Emergency Services previously submitted by the traveler.

tt-extra_trip_data_request
This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains outputs about the trip that the traveler has previously requested from a kiosk, or messages about the previous confirmation of this trip.

tt-guidance
This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains output (displays - text and/or graphics, and/or audio based information) which gives the traveler instructions on how to follow the route, e.g. cross the road, take a particular transit service, use the lift for wheelchairs, etc.

tt-guidance_input_request
This data flow is sent to the traveler by the Provide Driver and Traveler Services function. It contains a request for the traveler to input a specific item of data needed to determine the best route for on-line guidance. The data may comprise such things as the destination, preferred arrival time, plus route choice preferences and constraints. The latter will include limitations on the choice of mode(s) for all or part of the route.

tt-guidance_map_update_response
This data flow is sent to the traveler by the Provide Driver and Traveler Services function and contains the response to a previous request from the driver for an update to the digitized map data used to provide on-line traveler guidance.

tt-guidance_route_details
This data flow is sent to the traveler from the Provide Driver and Traveler Services function and contains details of the route that has been selected in response to the traveler's request for on-line guidance. The route and choice of guidance method will have been based on previous input from the traveler. Guidance will not begin until the traveler has positively accepted this data.

tto-alert_notification
This data flow within the Process Electronic Payment function contains information about a wide-area alert that has been issued and should be passed on to the toll operators in the field. This information could include specific criteria for toll operators to be on the look out for as they perform their collection activities.

ttop-archive_status
This data flow is sent to the traffic operations personnel by the Manage Traffic function and contains the status received from the Manage Archived Data function. The status may be good (the data was correct and received without error) or bad (errors were either found in the data itself or during the transmission of the data).

ttop-barrier_safeguard_status
This data flow is sent to the traffic operations personnel and is used to report the status of barrier systems (gates and other automated systems for roadway entry control) and safeguard systems (e.g. blast shields and other automated equipment used to mitigate the impact of incidents on transportation infrastructure). By monitoring this data flow, the traffic operations personnel can monitor the health and current operational status of these systems.

ttop-current_field_equip_fault_data
This data flow is sent to traffic operations personnel and contains details of the current operational status (state of the device, configuration, and fault data) of all field equipment. It also includes an indication of the repair status of all devices that have been reported and are in the process of being cleared by the Manage Maintenance and Construction function.

ttop-deactivate_information_restrictions
This data flow is sent by the Manage Traffic function to the traffic operations personnel to remove all restrictions activated to protect sensitive traveler information.

ttop-defined_incident_responses_data
This data flow is used by the Manage Traffic function to send the traffic operations personnel details of the data currently held in the store or defined incident responses used by the Manage Incidents facility.

ttop-demand_data
This data flow is sent to the traffic operations personnel by the Manage Traffic function and contains input data to be used in the calculation of demand forecasts.

ttop-demand_forecast_data
This data flow is used by the Manage Traffic function to send the Traffic Operations Personnel details of the predicted trends in traffic and travel demand and its effects on the overall transportation service.

ttop-demand_forecast_result
This data flow is used by the Manage Traffic function to send the traffic operations personnel results of progress in producing new data on traffic and travel demand and its effects on the overall transportation service.

ttop-demand_management_outputs_FB
This data flow is sent to the traffic operations personnel from the Manage Traffic function and contains all the output flows for the Manage Demand facility. It consists of the following data items each of which is defined in its own DDE:

ttop-demand_data
+ ttop-demand_forecast_data
+ ttop-demand_forecast_result
+ ttop-demand_policy_activation_result
+ ttop-demand_policy_information

ttop-demand_policy_activation_result
This data flow is sent to the traffic operations personnel from the Manage Traffic function and provides confirmation of the result of the implementation of the current demand management policy data.

ttop-demand_policy_information
This data flow is used by the Manage Traffic function to send traffic operations personnel details of the current travel demand controlling parameters being used to generate demand forecasts. It is sent in response to an operator request.

ttop-device_control_request_from_other_center
This data flow is received by the local traffic operations personnel from a traffic management center outside the local jurisdiction. It is used by the other center to request remote control of field equipment belonging to the local traffic management center.

ttop-disaster_response_plan_input_request
This data flow is a request for the traffic operations personnel to provide input and updates to a disaster response and recovery plan. It includes the following data item which is defined in its own DDE:

predefined_traffic_disaster_plan

ttop-dynamic_lane_status
This data flow is sent to the traffic operations personnel and is used to report the status of Dynamic Lane Management and Shoulder Use systems operating at the roadside in the geographic and/or jurisdictional area(s) served by the function.

ttop-env_sensor_status
This data flow provides the operational status (state of the device, configuration, and fault data) of an environmental sensor at the roadside for traffic operational personnel. The sensor may be within or outside the local jurisdiction, assuming permission for remote control has been granted.

ttop-evacuation_plan_input_request
This data flow is a request for the traffic operations personnel to provide input and updates to an evacuation plan. It includes the following data item which is defined in its own DDE:

predefined_traffic_evacuation_plan

ttop-incident_information_display
This data flow is used by the Manage Traffic function to send requested information on either current incidents or planned events, plus defined incident response data to traffic operations personnel.

ttop-incident_management_outputs_FB
This data flow is sent to the traffic operations personnel from the Manage Traffic function and contains all the output flows for the Manage Incidents facility. It consists of the following data items each of which is defined in its own DDE:

ttop-defined_incident_responses_data
+ ttop-incident_information_display
+ ttop-incident_video_image_output
+ ttop-possible_defined_response_output
+ ttop-possible_incidents_data
+ ttop-undefined_response_details

ttop-incident_video_image_output
This data flow is sent by the Manage Traffic function to the traffic operations personnel. It contains a video image from a closed circuit television (CCTV) system which shows incident conditions at a point in the road and freeway network served by the function. The CCTV may be within or outside the local jurisdiction, assuming permission for remote control has been granted.

ttop-lighting_system_status
This data flow is sent to the traffic operations personnel and is used to report the status of an electrical lighting system along the roadside. By monitoring this data flow, the traffic operations personnel can monitor the health and current operational status of these systems.

ttop-possible_defined_response_output
This data flow is sent from the Manage Traffic function to traffic operations personnel and contains the current contents of the store of possible defined incident responses.

ttop-possible_incidents_data
This data flow is sent from the Manage Traffic function and provides traffic operations personnel with details of incidents that are currently held in the store of possible incidents.

ttop-resource_response
This data flow is used by the Manage Traffic function to send the traffic operations personnel details of incident resource data used by the manage incidents data process.

ttop-roadway_incident_status
This data flow is used by the Manage Traffic function to send the traffic operations personnel status of roadway information inputs used by the Manage Incidents facility.

ttop-roadway_info_status
This data flow is sent to the traffic operations personnel and is used to report the status of roadway information systems (DMS or HAR). By monitoring this data flow, the traffic operations personnel can monitor the current operational status of these systems.

ttop-roadway_warning_system_status
This data flow is sent to the traffic operations personnel and is used to report the status of Roadway Warning systems operating at the roadside in the geographic and/or jurisdictional area(s) served by the function.

ttop-traffic_control_information_display
This data flow is sent by the Manage Traffic function to the traffic operations personnel. It contains information on traffic conditions and network performance measures. The information may concern current, long term, or predicted traffic data, or a combination of some or all of these three.

ttop-traveler_information_restrictions
This data flow is sent by the Manage Traffic function to the traffic operations personnel. It contains restrictions to sensitive traveler information.

ttop-undefined_response_details
This data flow is sent from the Manage Traffic function and provides traffic operations personnel with details of incidents for which no predefined response is available. The Manage Incidents facility will take no action concerning this type of incident until the traffic operations personnel have provided a defined response.

ttop-vehicle_signage_status
This data flow is sent to the traffic operations personnel and is used to report the status of in-vehicle signage data.

ttop-vehicle_speed_sensor_data
This data flow is sent to the Traffic Operations Personnel and contains vehicle speed data for display. The speed data could be actual sensor data, or data that has been processed or aggregated. It consists of the following data item which is defined in its own DDE:

speed_data_for_traffic_display

ttop-video_device_status
This data flow provides the operational status (state of the device, configuration, and fault data) of video image equipment such as closed circuit televisions (CCTV) at the roadside. The CCTVs may be within or outside the local jurisdiction. If the latter, the status is provided by a traffic management center outside the local jurisdiction whose CCTVs are remotely controlled by the local center. Permission for remote control of the CCTV is assumed to have been granted.

ttop-video_image_output
This data flow is sent by the Manage Traffic function to the traffic operations personnel. It contains a video image from a closed circuit television (cctv) system which shows traffic conditions at a point in the road and freeway network served by the function.

ttop-weather_information
This data flow is sent by the Manage Traffic function to the traffic operations personnel. It contains information on weather conditions. The information may contain current or predicted weather conditions, or a combination of both conditions.

ttop-wide_area_alert_notification
This data flow is sent from the Manage Traffic function and provides notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be sent to the traffic operations personnel to be on the look out for certain conditions.

ttop-wrong_way_detection
This data flow is used by the Manage Traffic function to send the traffic operations personnel details of wrong-way vehicle detection in reversible lanes.

tt-other_services_roadside_confirmed
This data flow is sent to the traveler by the Manage Transit function. It contains a message giving the traveler at the roadside, i.e. the transit stop, details of the success or failure of the request for other (yellow pages) services.

tt-other_services_vehicle_confirmed
This data flow is sent to the traveler by the Manage Transit function. It contains a message giving the traveler on-board the vehicle details of the success or failure of the request for other (yellow pages) services.

tto-transaction_reports
This data flow is sent to the toll operator by the Provide Electronic Payments Services function. It contains details of the toll transactions that have taken place in the last day. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output.

tt-personal_extra_trip_data_request
This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains outputs about the trip that the traveler has previously requested from a personal device, or messages about the previous confirmation of this trip.

tt-personal_traveler_information
This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains displays of the traffic data, transit routes, schedules, and parking facilities, traveler information alerts, and other services information to be displayed on a personal device.

tt-personal_trip_planning_responses
This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains the result of requests for more data about the trip on which the traveler is requesting information from a personal device.

tt-remote_emergency_response
This data flow is sent to the traveler from the Manage Emergency Services function and contains acknowledgment of an emergency previously declared by the traveler, as well as response actions being taken, actions the traveler should take, or requests for additional information from the traveler.

tt-remote_traveler_information
This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains displays of the traffic data, transit routes and schedules, and other services information to be displayed at a kiosks or remote traveler support device.

tt-roadside_access_message
This data flow is sent to the traveler by the Manage Transit function. It contains a message giving the traveler details of the success or failure of the fare transaction previously initiated from at the roadside, i.e. the transit stop.

tt-roadside_payment_confirmed
This data flow is sent to the traveler by the Manage Transit function. It contains a message giving the traveler at the roadside, i.e. the transit stop, details of the success or failure of the payment transaction.

ttrop-archive_status
This data flow is sent to the transit operations personnel by the Manage Transit function and contains the status received by Manage Transit from the Manage Archived Data function after data was sent from Manage Transit to the Manage Archived Data function for archival. The status may be good (the data was correct and received without error) or bad (errors were either found in the data itself or during the transmission of the data).

ttrop-coordination_request
This data flow is sent to the transit operations personnel by the Manage Transit function. It contains requests for input on the responses to be made to a particular emergency situation or incident.

ttrop-emergency_plan_response
This data flow is sent from the Manage Transit function to the transit operations personnel to present the data for the coordination of response plans between the Transit function and the Emergency management function for disasters and evacuations. This data flow is used to coordinate disaster response and recovery plans with transit. It contains information regarding the nature of the disaster, and the preplanned response and evacuation plan for transit. Given this information, transit personnel can provide a plan that it will use that is appropriate for the given disaster.

ttrop-emergency_request
This data flow is sent to the transit operations personnel by the Manage Transit function and contains the emergency requests that have been input from either the transit vehicle operator or the traveler.

ttrop-infrastructure_integrity_status
This data flow is sent to the transit operations personnel by the Manage Transit function and contains the integrity status of the transit and rail infrastructure that has been input from the Security Monitoring function. This data can be used to reroute transit vehicles, including shutting down light and commuter rail lines if there is a problem.

ttrop-media_parameters
This data flow is sent to the transit operations personnel by the Manage Transit function and contains the current set of parameters used to control the style and content of information about incidents affecting the transit network that is automatically sent to the media.

ttrop-parameters
This data flow is sent to the transit operations personnel by the Manage Transit function and contains a list of the currently available planning parameters that can be used to prepare transit schedules. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output.

ttrop-paratransit_service
This data flow is sent to the transit operations personnel by the Manage Transit function. It contains details of paratransit services as and when they are provided to travelers. This data also includes input from the transit vehicle operator concerning paratransit schedules and passenger loading. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output.

ttrop-parking_information
This data flow to the transit operations personnel contains information on parking lot occupancy (e.g. number of spaces filled), state (e.g. full, almost full) and detailed arrival and departure information.

ttrop-passenger_loading_error
This data flow is sent to the transit operations personnel by the Manage Transit function and contains details of a miss-match in the passenger (traveler, including a user of the transit system) data collected from the fare collection and data collection processes on-board a transit vehicle. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output.

ttrop-potential_incidents_alarm
This data flow is sent to the transit operations personnel by the Manage Transit function and contains information about a potential incident on-board a transit vehicle.

ttrop-proposed_corrections
This data flow is sent to the transit operations personnel by the Manage Transit function. It contains details of the proposed corrective action to return a transit vehicle to the schedule from which it has deviated. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output.

ttrop-response_parameter_output
This data flow is sent to the transit operations personnel by the Manage Transit function. It contains the output of the preplanned responses to incidents by and within the transit operations area.

ttrop-technician_information
This data flow is sent to the transit operations personnel by the Manage Transit function. It contains information about transit maintenance technician work assignments. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output.

ttrop-traffic_and_maint_and_const_data
This data flow to the transit operations personnel contains information received from the Manage Traffic and Manage Maintenance and Construction functions such as road network conditions, roadway detours and closures, work zone information, road weather information, and asset restrictions.

ttrop-transaction_reports
This data flow is sent to the transit operations personnel by the Provide Electronic Payments Services function. It contains details of the transit fare payment transactions that have taken place. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output.

ttrop-transit_fare_output
This data flow is sent from the transit operations personnel to the Provide Electronic Payment Services function. It contains the output of the current transit fares held in the local data store.

ttrop-transit_operations_information
This data flow is sent to the transit operations personnel by the Manage Transit function. It contains information about transit system operations, such as vehicle locations, transit vehicle service status, transit vehicle maintenance data, transit vehicle operating data, and transit vehicle operator authentication status.

ttrop-transit_services_output
This data flow is sent to the transit operations personnel by the Manage Transit function and contains output of the current transit routes and schedules. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output.

ttrop-transit_vehicle_data
This data flow is sent to the transit operations personnel by the Manage Transit function. It contains data about transit vehicle(s) including data and status collected from environmental probes onboard transit vehicles. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output.

ttrop-transit_vehicle_disable_status
This data flow is sent to the transit operations personnel from the Manage Transit function and contains status of the transit vehicle disabling.

ttrop-transit_vehicle_inventory
This data flow consists of the presentation to the transit operations personnel of the inventory of the transit vehicles and their service status and availability to be assigned to a route/run.

ttrop-transit_vehicle_maintenance_information
This data flow is sent to the transit operations personnel by the Manage Transit function. It contains a report on the maintenance state of transit vehicle(s). The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output.

ttrop-transit_vehicle_operator_information
This data flow is sent to the transit operations personnel by the Manage Transit function. It contains information about a transit vehicle operator that is being used to generate work assignments (e.g., route and schedule assignment, matching operator to vehicle, etc.) The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output.

ttrop-transp_information_for_transit_operations
This data flow contains traveler information for use by transit operations personnel.

ttrop-weather_information
This data flow contains weather observations and forecasts obtained from either National Weather Service or surface transportation weather services.

ttrop-wide_area_alert_notification
This data flow is sent to the transit operations personnel by the Manage Transit function and provides notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be sent to the transit system operator to be on the look out for certain conditions.

ttrop-work_schedule
This data flow is sent to the transit operations personnel by the Manage Transit function. It contains the schedule of work to be carried out to maintain the transit vehicle(s). The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output.

tt-secure_area_broadcast_message
This data flow contains textual or audio information for travelers in secure areas such as rest areas, park and ride lots, etc. The information will be sent out as part of the response to an emergency or incident being detected within the network.

tt-secure_transit_vehicle_broadcast_message
This data flow contains textual or audio information for travelers on-board a transit vehicle. This information will be sent out as part of the response to an emergency or incident being detected within the network.

tt-secure_transit_vehicle_emergency_response
This data flow is sent to the traveler on-board a transit vehicle from the function responding to the emergency and contains acknowledgment of an emergency previously declared by the traveler, as well as response actions being taken, actions the traveler should take, or requests for additional information from the traveler.

ttsp-provider_update_confirm
This data flow is sent to confirm that a request for registration or update of the travel service provider's profile has been successfully completed. The provider can now expect to receive requests for travel services data from another process within this function.

ttsp-transaction_request
This data flow is sent to the information and service provider from the Provide Driver and Traveler Services function and contains a request that payment for the associated travel services and reservation request is transacted.

ttsp-travel_services_info_request
This data flow is used by the Provide Driver and Traveler Services function to obtain data from the information and service providers. It contains requests for information of a general nature, or specific information, or information on available transactions.

ttsti-telecomm_alert_notification
This data flow is sent from Provide Driver and Traveler Services function to the Telecommunications System for Traveler Information terminator. It contains wide area alerts formatted for traveler information suitable for transfer to a voice-based traveler information system (e.g. 511). This data flow includes alert notification information such as severe weather conditions, a natural or man-made disaster, civil emergency, or child abduction to be displayed to travelers. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_telecomm_wide_area_alert_information

ttsti-telecomm_batch_regional_traveler_information
This data flow is sent from Provide Driver and Traveler Services function to the Telecommunications System for Traveler Information terminator. It contains region- specific traveler information suitable for batch upload. This data flow includes information such as traffic conditions, work zone and roadway maintenance information, roadway environment conditions, weather and event information, transit schedules, deviations, and fares, yellow pages information, border crossing information, current ferry and rail schedules, and airport status. The data flow consists of the following data items each of which is defined in its own DDE:

telecomm_traveler_information
+ region_identity
+ information_request_id

ttsti-telecomm_caller_traveler_information
This data flow is sent from Provide Driver and Traveler Services function to the Telecommunications System for Traveler Information terminator. It contains region- specific traveler information suitable for transfer to a 511 caller via a 511 traveler information system and may be specially formatted for voice. This data flow includes information such as traffic conditions, work zone and roadway maintenance information, roadway environment conditions, weather and event information, transit schedules, deviations, and fares, yellow pages information, border crossing information, current ferry and rail schedules, and airport status. The data flow consists of the following data items each of which is defined in its own DDE:

telecomm_traveler_information
+ region_identity
+ information_request_id

tt-transit_information
This data flow is sent to the traveler by the Manage Transit function. It contains a message giving the traveler details of transit services that are currently available.

tt-transit_vehicle_information
This data flow is sent to the traveler from the Manage transit function and contains information such as route number, service number, etc. about a transit vehicle that has just arrived at a transit stop.

tt-traveler_information
This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains displays of the travel data, transit routes and schedules, and other services (yellow pages) information produced in response to a previous traveler request.

tt-trip_planning_responses
This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains the result of requests for more data about the trip on which the traveler is requesting information from a kiosk.

tt-vehicle_access_message
This data flow is sent to the traveler by the Manage Transit function. It contains a message giving the traveler details of the success or failure of the fare transaction previously initiated from on-board the vehicle.

tt-vehicle_payment_confirmed
This data flow is sent to the traveler by the Manage Transit function. It contains a message giving the traveler on-board the vehicle details of the success or failure of the payment transaction.

ttvo-alert_notification
This data flow contains information about a wide-area alert that has been issued for a major emergency such as a natural or man-made disaster, civil emergency, or child abduction. This information could include specific criteria for operators to be on the look out for.

ttvo-batch_mode_data_transfer_status
This data flow is sent to the transit vehicle operator by the Manage Transit function. It contains details of the result of the previous request for a transfer of transit fare transaction data to the Provide Electronic Payment Services function for further processing. If the transfer or processing failed the operator may request it to be repeated.

ttvo-corrective_instructions
This data flow is sent to the transit vehicle operator by the Manage Transit function. It contains items of data which are designed to help the operator restore the transit vehicle to its correct schedule. These will comprise such things as corrections to the current route, changes to the sequence plus inclusion or deletion of stops and changes in the proscribed vehicle speed between stops.

ttvo-paratransit_information
This data flow is sent to the transit vehicle operator by the Manage Transit function. It contains information about the paratransit schedule that the transit vehicle operator is being requested to perform. This information comprises data such as the route, pick-up time, drop of point, and route. It may involve picking up one or more travelers at different locations along the route.

ttvo-request_fare_transaction_mode_set_up
This data flow is sent from the transit vehicle operator to the Manage Transit function. It contains a request that the operator input the mode of transit fare transaction processing that is to be used on-board the vehicle. Either one of the following two modes is possible: batch mode (part processing of each fare transaction carried out and the details of a large number of transactions transferred to the central function for further processing) or interactive mode (complete processing of each transaction carried out without stopping).

ttvo-route_assignments
This data flow is sent to the transit vehicle operator by the Manage Transit function. It contains information for the operator about route assignments from the regular operator work assignment facility.

ttvo-secure_transit_vehicle_emergency_response
This data flow is sent to the transit vehicle operator on-board a transit vehicle from the Manage Emergency Services function and contains acknowledgment of an emergency previously declared by the transit vehicle operator.

ttvo-secure_transit_vehicle_surveillance
This data flow is sent to the transit vehicle operator on-board a transit vehicle from the Manage Emergency Services function and contains direct high-resolution digitized image and audio output of surveillance equipment on-board the vehicle.

ttvo-transit_vehicle_disable_status
This data flow is sent to the transit vehicle operator on-board a transit vehicle from the Manage Emergency Services function and contains status of the transit vehicle disabling initiated by the transit system operator.

ttvo-transit_vehicle_schedule_deviations
This data flow is sent to the transit vehicle operator by the Manage Transit function. It contains information for the transit vehicle operator on deviations from the transit route and/or schedule in order that normal service operation can be provided.

turning_movements
This data flow defines allowed or prohibited turning movements.

twe-hri_status
This data flow provides a real-time indication of the status at a highway grade crossing (e.g. operational, not-operational, obstructed, etc.).

twe-stop_highway_indication
This data flow provides a real-time confirmation that a highway grade crossing is closed to highway non-rail traffic and all trains may proceed at full authorized speed. Alternative indications are possible, i.e. proceed at reduced speed - prepared to stop.

twe-stop_train_indication
This data flow provides a real-time indication that a highway grade crossing is obstructed or otherwise closed and all trains must stop prior to entering it. Alternative indications to full stop are possible, i.e. proceed at reduced speed - prepared to stop.

tws-env_info
This data flow contains processed environmental and road weather information. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions

+ road_weather_conditions

tws-env_probe_info_from_isp

This data flow is sent from the Provide Driver and Traveler Services function to the Weather Service terminator and contains aggregated environmental conditions data (measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, ALB status, and other collected vehicle system status and sensor information) collected from ITS-equipped personal vehicles. The data flow consists of the following item which is defined in its own DDE:

vehicle_env_probe_data_aggregation

tws-env_sensor_data

This data flow provides outputs from a set of environment sensors that are monitored by the maintenance and construction function. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}

tws-env_sensor_data_from_traffic

This data flow provides outputs from a set of environment sensors that are monitored by the manage traffic function. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}

tws-roadway_env_sensor_data

This data flow provides a set of outputs from environment sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output}

tws-roadway_env_sensor_status

This data flow provides a report of the status of environmental sensors at the roadway. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which are defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_device_status}

tws-vehicle_env_probe_data

This data flow consists of environmental probe data collected at the roadside and is sent to the Weather Service terminator for further processing to determine environmental conditions. For each vehicle, the data includes unique vehicle identifiers, measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, ALB status, and other collected vehicle system status and sensor information. Both current data and snapshots of recent events (e.g., traction control or anti-lock brake system activations) may be reported. It consists of the following data items each of which is defined in its own DDE:

list_size
+ station_id
+ list_size {vehicle_env_probe_data}

tws-vehicle_env_probe_status

This data flow provides the operational status (state of the device, configuration, and fault data) of the vehicle environmental probe field equipment to the Weather Service terminator. It consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity

tws-weather_archive_request

This data flow from the Manage Archived Data function to the Weather Service terminator contains the request for data collected and stored by the terminator that may be of interest to archived data users systems that is not included in data from sources within the ITS functions. This data flow includes request for a catalog of the information available as well as the request for the data itself. This data flow consists of the following items each of which is defined in its own DDE:

weather_archive_catalog_request
+ weather_archive_data_request

tws-weather_archive_status
This data flow is sent from the Manage Archived Data function to the Weather Service terminator. It is the status returned when weather archive data is sent from the terminator to the Manage Archived Data function.

U

undefined_incident_response
This data flow is used within the Manage Traffic function and contains details of an incident for which no defined response can be determined. It consists of the following data items each of which is defined in its own DDE:

incident_confidence_level
+ incident_location
+ incident_severity
+ incident_start_time
+ incident_type

unit_number
This data flow is used within the Manage Traffic function to provide an identification number of a particular piece of equipment, e.g. intersection signal controller, pedestrian signal controller, dynamic message sign (DMS), ramp meter, parking lot, road/highway link, toll segment, traffic sensor, etc.

unusual_congestion
This data flow is used within the Manage Traffic function and identifies places in the road network at which unusual congestion has been detected. It consists of the following data item which is defined in its own DDE:

location_identity

unusual_data
This data flow is used within the Manage Traffic function and contains information obtained from data analyzed by traffic sensors that shows the possible presence of congestion. It is sent to the Manage Incidents facility for further analysis and contains the following items each of which is defined in its own DDE:

vehicle_count
+ vehicle_queue_length
+ vehicle_speed
+ vehicle_headway
+ vehicle_occupancy

update_transit_routes
This data flow is used within the Manage Transit function to indicate that the transit routes should be re-calculated based on the current planning parameters provided by the transit system operator, the current operational data, plus the current transit routes, and using digitized map data for road and freeway layout, etc. This flow consists of the following item which is defined in its own DDE:

transit_service_planning_parameters

update_transit_schedules
This data flow is used within the Manage Transit function to indicate that the transit schedules should be re-calculated based on the currently planning parameters. This flow consists of the following item which is defined in its own DDE:

transit_service_planning_parameters

user_defined_data
This data flow is sent by the Other Data Sources and contains information that may be of interest to archive data users systems such as economic data, demographic data, project data, or other data that users of the archive have requested be imported into the archive.

user_defined_data_attributes
This data flow is used to provide meta data included with the user defined data that has been imported into the archive. Items of meta data may include attributes that describe the source and quality of the data. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published

+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

user_defined_data_for_archive

This data flow is sent by the Other Data Sources and contains information that may be of interest to archive data users systems along with the meta data that is necessary to describe the imported data to the Manage Archived Data function. This data flow contains the following items each of which is defined in its own DDE:

user_defined_data
+ user_defined_data_attributes

user_defined_data_request

This data flow from the Manage Archived Data function to the Other Data Sources terminator contains the request for the data held by the terminator. The request for data may include either or both the description of the data required or a time frame over which the requested information may be available.

V

variable_speed_limit_control

This data flow is used within the Manage Traffic function to provide configuration and control commands for variable speed limit systems. It includes parameters provided by traffic operations personnel for use by a roadside process to determine optimal speed limits by lane, and control data for display of current speed limits and other information to drivers. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size
{station_id
+ device_identity
+ variable_speed_limit_control_request}

variable_speed_limit_control_from_traffic_personnel

This data flow provides control commands from the Traffic Operations Personnel interface process for variable speed equipment at the roadway, including parameters for calculating the optimal speed limit by lane.

variable_speed_limit_control_request

This data flow provides control commands for a single speed sensor at the roadway. These commands can be used to configure the sensor and to define the variable speed limit that output to the driver.

variable_speed_limit_data_for_signage

This data flow from the Manage Vehicle Speed function contains information to be distributed to drivers approaching an area with variable speed limits to provide the operational status (whether it is currently on or not) and the current safe speed limit based on traffic and environmental conditions. This can be used to inform travelers about conditions in the area using in-vehicle signage functions.

variable_speed_limit_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of variable speed limit systems to the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can assess the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

variable_speed_limit_info

This data flow indicates to drivers the current safe speed based on variables like traffic or environmental conditions.

variable_speed_limit_status

This data flow is used within the Manage Traffic function to report the status of a variable speed limit system, including automated or remotely controlled systems used to manage speed dynamically at the roadway. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size
{station_id
+ device_identity
+ roadside_device_status}

vehicle_accel_decel_data

This data flow contains the acceleration and deceleration characteristics profile for a vehicle over its entire speed range. The data consists of acceleration and deceleration rates for the whole range of vehicle speeds. The values at intermediate speeds must be calculated by interpolation. When this data is provided during the vehicle's manufacture, it will be a guaranteed maximum. When provided by other vehicles, or by the Manage Demand facility within the Manage Traffic function, it will override the maximum values.

vehicle_accel_decel_profile

This data flow is used within the Provide Vehicle Monitoring and Control function. It contains the acceleration and deceleration characteristics profile for a vehicle over its entire speed range. This will be used in the automatic control of the vehicle when it is operating as part of a platoon or on its own. It is loaded into the vehicle during its manufacture and cannot be changed. However the Manage Demand facility in the Manage Traffic function, or other vehicles in a platoon can provide a different set of data to be used in preference to this set. The data flow consists of the following data item which is defined in its own DDE:

vehicle_accel_decel_data

vehicle_action_requests

This data flow is used within the Provide Vehicle Control and Monitoring function to initiate action to avoid potential vehicle collisions. It contains the following data items, each of which is defined in its own DDE:

vehicle_change_position_requests
+ vehicle_crash_restraint_commands

vehicle_advisory_information

This data flow is used within the Provide Driver and Traveler Services function and contains vehicle control messages for the driver. It consists of the following data items each of which is defined in its own DDE:

em_to_vehicle_incident_scene_information
+ emergency_message_auto_output
+ emergency_message_driver_output
+ intrusion_alert_for_in_vehicle_signing
+ position_warnings
+ safety_warnings
+ transit_vehicle_status_for_signing
+ vehicle_control_status
+ vehicle_env_probe_data_output
+ vehicle_occupants_detected
+ vehicle_signage_data
+ vehicle_status_details
+ vision_data
+ work_zone_intrusion_alert_on_board_for_in_vehicle_signing

vehicle_alert_subscriptions

This data flow contains a traveler's subscriptions for alerts while in a vehicle (e.g., traffic congestion, transit service disruption, incidents, weather road conditions) based on the traveler's location, search radius, and so forth. This flow may also contain configurable alert thresholds (e.g., parking lot almost full, severity of the alert, average speed less than a certain value). It consists of the following items each of which is defined in its own DDE:

vehicle_border_alert_subscriptions
+ vehicle_event_alert_subscriptions
+ vehicle_incident_alert_subscriptions
+ vehicle_multimodal_alert_subscriptions
+ vehicle_parking_alert_subscriptions
+ vehicle_traffic_alert_subscriptions
+ vehicle_transit_alert_subscriptions
+ vehicle_weather_alert_subscriptions

vehicle_and_driver_safety_status

This data flow is used within the Provide Vehicle Monitoring and Control function and contains an indication of whether the vehicle and/or driver have been found to be safe or unsafe.

vehicle_attitude_data

This data flow is used within the Provide Vehicle Monitoring and Control function and contains data about a vehicle's attitude, e.g. upright, rolled to the left, right, nose down, etc.

vehicle_barrier_access_request

This data flow provides configuration and control commands for access to barrier systems, such as gates, barriers, and other

automated or remotely controlled systems used to manage entry to secure areas or roadways. It consists of the following data items each of which is defined in its own DDE:

barrier_system_control_request
+ device_identity
+ station_id

vehicle_barrier_access_status
This data flow is used to report the status of a barrier system, such as gates, barriers, and other automated or remotely controlled systems used to manage entry to secure areas or roadways. By monitoring this data flow, the receiving process can determine whether access has been granted or if additional information is required.

vehicle_border_alert
This data flow contains traveler alerts that report regionally relevant border closures, delays, border incidents, and other information that may impact the traveler in a vehicle. Alerts are provided to a traveler's in-vehicle device based on traveler-supplied subscriptions including the traveler's location, search radius, drive route, or timeframe, as well as configurable alert thresholds (e.g., border wait times, queue lengths, severity of the alert). It consists of the following data item which is defined in its own DDE:

border_alert

vehicle_border_alert_subscriptions
This data flow contains a traveler's subscription for border closure/delay alerts, and may include other parameters such as the traveler's location, search radius, drive route, or timeframe. It may also contain configurable alert thresholds (e.g., border wait times, queue lengths, severity of the alert).

vehicle_broadcast_border_data
This data flow contains border crossing information to be broadcast to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

border_data_for_broadcast

vehicle_broadcast_event_information
This data flow contains event information to be broadcast to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

event_information_for_broadcast

vehicle_broadcast_incident_information
This data flow contains incident information to be broadcast to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

incident_information_for_broadcast

vehicle_broadcast_multimodal_data
This data flow contains multimodal travel services information to be broadcast to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

multimodal_data_for_broadcast

vehicle_broadcast_parking_data
This data flow contains parking information to be broadcast to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

parking_data_for_broadcast

vehicle_broadcast_price_data
This data flow contains price information to be broadcast to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

price_data_for_broadcast

vehicle_broadcast_traffic_data
This data flow contains traffic information to be broadcast to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

traffic_data_for_broadcast

vehicle_broadcast_transit_data
This data flow contains transit information to be broadcast to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

transit_data_for_broadcast

vehicle_broadcast_weather_data
This data flow contains weather information to be broadcast to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

weather_data_for_broadcast

vehicle_change_position_requests
This data flow is used within the Provide Vehicle Monitoring and Control function and contains commands which will provide automatic control of the vehicle. It consists of the following items each of which is defined in its own DDE.

throttle_commands
+ steering_commands
+ brake_commands
+ direction_commands

vehicle_characteristics
This data flow is used within the Provide Electronic Payment Services function and contains a digitized representation of the characteristics of a vehicle. These will have been obtained from the processing of analog data by sensors at either a toll or parking lot payment point.

vehicle_characteristics_for_roadway
This data flow contains Information about a vehicle including vehicle type and equipment capabilities (trailer, gross weight, height) to support lane assignments.

vehicle_class
This data flow is used within the Manage Traffic function and contains an identifier for the class of vehicle for which special speed limits apply.

vehicle_control_data
This data flow is used within the Provide Vehicle Monitoring and Control function. It provides data for use in the automatic control of the vehicle. The data flow consists of the following items of data each of which is defined in its own DDE:

avo_accel_decel_profile
+ avo_headway
+ vehicle_accel_decel_profile
+ vehicle_standard_headway

vehicle_control_data_store
This data store is used by processes within the Provide Vehicle Monitoring and Control function and provides data for use in the automatic control of the vehicle. The contents of this data store are loaded by the vehicle manufacturer, or the vehicle control system manufacturer. The data store cannot be changed or examined by the driver. It consists of the following items of data each of which is defined in its own DDE:

avo_accel_decel_profile
+ avo_headway
+ vehicle_accel_decel_profile
+ vehicle_standard_headway

vehicle_control_request
This data flow contains the request from the driver for the vehicle to be put under automatic control. The value of the data will decide the form of control to be provided. Values may comprise but not be limited to manual control, platooning, speed control, headway control, lane control, automated lane use.

vehicle_control_status
This data flow is used to provide data on the status of the automatic control of the vehicle for output to the driver.

vehicle_correction_actions
This data flow contains vehicle schedule changes to support connection protection.

vehicle_count
This data item contains a count of the number of vehicles which have been detected by a detector located on the highway or at a parking lot entrance or exit, as the vehicles flow over its sensor. The units are vehicles-per-hour (veh/hr).

vehicle_crash_restraint_commands
This data flow is used within the Provide Vehicle Monitoring and Control function to activate the vehicle's crash restraint mechanisms.

vehicle_crash_sensor_data
This data flow is used within the Provide Vehicle Monitoring and Control function and contains data obtained from the processing by sensors of analog data received on-board the vehicle. This data provides information about the effects of a crash in which the vehicle has been involved.

vehicle_data
This data flow is sent from the Provide Driver and Traveler Services function to the Provide Vehicle Monitoring and Control

function and contains data for use by the latter, details of a route that involves automated lanes and a request from the driver for the vehicle to be automatically controlled. It consists of the following data items each of which is defined in its own DDE:

avo_route
+ vehicle_control_request
+ vehicle_location_for_incidents
+ vehicle_location_for_probe_data
+ traffic_probe_configuration

vehicle_data_for_road_pricing

This DFD flow is sent by the Provide Vehicle Control and Monitoring function to the Provide Open Road Tolling function. It consists of the following data items each of which is defined in its own DDE:

vehicle_location_for_vmt
+ vehicle_identity_for_vmt
+ vehicle_speed_and_distance_for_vmt
+ vehicle_location_for_vmt_roadway
+ vehicle_identity_for_vmt_roadway
+ vehicle_speed_and_distance_for_vmt_roadway
+ vmt_equipment_status

vehicle_data_for_traffic_management

This data flow is sent from the Provide Vehicle Monitoring and Control function to the Manage Traffic function. It contains vehicle status, environmental and traffic probe data, and other data for use in the management of vehicle traffic. It also contains automated vehicle operations equipment operational status information. The data flow consists of the following data items each of which is defined in its own DDE:

avo_device_status
+ avo_operational_data
+ vehicle_barrier_access_request
+ vehicle_env_probe_data
+ vehicle_occupants_detected
+ vehicle_characteristics_for_roadway
+ vehicle_roadside_safety_data
+ vehicle_status_details_for_emissions
+ vehicle_status_for_intersection
+ vehicle_traffic_probe_data
+ vehicle_traffic_probe_data_for_archive

vehicle_detection_data

This data flow is used within the Manage Traffic function and contains vehicle detection data, i.e. data that provides information about vehicles moving on the road and highway network served by the function. It consists of the following data items each of which is defined in its own DDE:

1{station_id
+ sensor_identity
+ traffic_sensor_output}list_size

vehicle_display_definitions_data

This data store is used within the Provide Driver and Traveler Services function. It contains information about each type of road sign and the templates for messages which can be output to the driver via an in-vehicle display.

vehicle_display_map_update_request

This data flow is used within the Provide Driver and Traveler Services function and contains the request for the update of the data for the digitized map displays used as the background to the output of traffic, trip and travel information in a traveler's device onboard a vehicle. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ traveler_identity

vehicle_display_map_update_response

This data flow contains the response to the previous request for the update of the data for the digitized map displays used as the background to the output of traffic, trip and travel information on a traveler's device used onboard a vehicle. Payment can be made by reducing the credit and stored credit data items or by using a previously supplied credit identity through the financial institution. The success of this transaction will be indicated by the confirmation flag data item. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ display_map_traveler_update_cost
+ stored_credit
+ traveler_identity

vehicle_display_type

This data flow is used within the Provide Driver and Traveler Services function and may include the following definitions of the various types of driver and traveler displays that are available in the vehicle, such as: no display; travel and traffic advisory display, updated with vehicle location changes; enable/disable roadside information display; enable/disable enhanced vision display; select front enhanced vision display; select rear enhanced vision display, etc.

vehicle_emergency_info

This flow provides emergency traveler information to the Provide Driver Personal Services function. It contains the following items each of which is defined in its own DDE:

vehicle_evacuation_traveler_information
+ vehicle_transportation_system_status
+ vehicle_wide_area_alert_information
+ vehicle_emergency_traveler_information
+ field_evacuation_traveler_information
+ field_transportation_system_status
+ field_wide_area_alert_information
+ field_emergency_traveler_information

vehicle_emergency_information_request

This data flow is used within the Provide Remote Traveler Services function and contains a request for evacuation information, incident traffic impact, and other emergency information by a traveler in a vehicle. This request will also be used to sort and filter the data. It consists of the following item which is defined in its own DDE:

vehicle_location
+ emergency_information_request

vehicle_emergency_request

This data flow is used within the Provide Vehicle Monitoring and Control function. It contains information about an in-vehicle emergency and includes the following items each defined in its own DDE:

vehicle_crash_sensor_data
+ vehicle_location_for_incidents
+ vehicle_identity
+ processed_cargo_data
+ vehicle_status_details

vehicle_emergency_traveler_information

This data flow contains emergency information to be disseminated to the traveler in a vehicle. This data flow consists of the following items each of which is defined in its own DDE:

care_facility_status_for_isp
+ incident_details_from_media
+ shelter_information_to_travelers
+ emergency_travel_service_update
+ traffic_incident_data_for_isp
+ other_isp_emergency_data
+ incident_information

vehicle_emissions_alert

This data flow is used by the Manage Traffic function as a means of transferring current vehicle emissions data from the Manage Emissions facility to the Manage Emergency Services function to enable enforcement of air quality standards. It contains data about the current levels of pollution being output by a vehicle. This data is held in the following data items each of which is defined in its own DDE:

vehicle_identity
+ vehicle_license
+ emissions_data_violation

vehicle_emissions_message

This data flow is used within the Manage Traffic function as a means of transferring current vehicle emissions data from the Manage Emissions facility to the Provide Device Control facility. It contains data about the current levels of emissions being output by a vehicle and is for output to vehicle drivers. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_emissions_message_for_highways
+ vehicle_emissions_message_for_roads

vehicle_emissions_message_for_highways

This data flow is used within the Manage Traffic function and contains data about the current levels of emissions being output by a vehicle. It is for output to the vehicle driver who is on a freeway in the geographic and/or jurisdictional area(s) served by the function. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_identity
+ emissions_output_message

vehicle_emissions_message_for_roads

This data flow is used within the Manage Traffic function and contains data about the current levels of emissions being output by a vehicle. It is for output to the vehicle driver who is on a road (surface street) in the geographic and/or jurisdictional area(s) served by the function. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_identity
+ emissions_output_message

vehicle_emissions_sensor_control

This data flow, sent by emissions operations personnel, contains configuration and control information for emissions sensors, and data on acceptable vehicle emissions levels. It consists of the following items of data each of which is defined in its own DDE:

vehicle_emissions_state_acceptance_criteria
+ vehicle_emissions_sensor_control_parameters

vehicle_emissions_sensor_control_data

This data flow is used within the Manage Traffic function and contains configuration and control information for an emission sensor.

vehicle_emissions_sensor_control_parameters

This data flow is used within the Manage Traffic function and contains configuration and control information for emissions sensors. It consists of the following items of data each of which is defined in its own DDE:

vehicle_emissions_sensor_control_data
+ sensor_identity
+ station_id

vehicle_emissions_sensor_data

This data flow is used within the Manage Traffic function and contains the digitized values of vehicle emissions levels obtained from roadside sensors. It consists of the following data items each of which is defined in its own DDE:

current_carbon_monoxide_pollution
+ current_hydrocarbon_pollution
+ current_nitrogen_oxides_pollution
+ current_ozone_pollution
+ current_particulate_pollution
+ current_sulfur_dioxide_pollution
+ vehicle_type
+ sensor_identity
+ station_id

vehicle_emissions_sensor_status

This data flow provides the operational status (state of the device, configuration, and fault data) of an emissions sensor. It consists of the following items each of which is defined in its own DDE:

sensor_device_status
+ sensor_identity
+ station_id

vehicle_emissions_sensor_status_for_operator

This data flow provides the operational status (state of the device, configuration, and fault data) of an emissions sensor. It consists of the following items each of which is defined in its own DDE:

sensor_device_status
+ sensor_identity
+ station_id

vehicle_emissions_state_acceptance_criteria

This data flow is used within the Manage Traffic function and contains data on the emissions levels produced by different types of vehicles under various operating conditions. It consists of the following items of data each of which is defined in its own DDE:

emissions_vehicle_acceptance_data
+ emissions_vehicle_acceptance_conditions

vehicle_emissions_state_collection

This data flow is used within the Manage Traffic function and contains the average levels of the various types of pollutants that were being output by a particular type of violating vehicle. It consists of the following data items each of which is defined in its own DDE:

current_carbon_monoxide_pollution
+ current_hydrocarbon_pollution
+ current_nitrogen_oxides_pollution
+ current_ozone_pollution
+ current_particulate_pollution
+ current_sulfur_dioxide_pollution

+ vehicle_type

vehicle_env_probe_data

This data flow provides outputs from sensors onboard a vehicle used to determine environmental conditions, including a unique vehicle identifier, measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, ALB status, and other collected vehicle system status and sensor information that can be used to estimate environmental conditions. Both current data and snapshots of recent events (e.g., traction control or anti-lock brake system activations) may be reported. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity + time +
list_size +
list_size{time + location_identity + speed + sensor_identity
+ vehicle_env_sensor_output}

vehicle_env_probe_data_aggregation

This data flow is produced by the Provide Driver and Traveler Services function and contains aggregated environmental conditions data (measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, ALB status, and other collected vehicle system status and sensor information) and other aggregated data collected from probe vehicles that can be used to estimate current environmental conditions. Sources of probe data include vehicle environmental probes. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{route_segment_identity
+ vehicle_env_sensor_output}

vehicle_env_probe_data_and_status_for_maint

This data flow consists of environmental probe data and status collected at the roadside for further processing to determine environmental conditions and is sent to the Manage Maintenance and Construction function. It consists of the following data items each of which is defined in its own DDE:

vehicle_env_probe_data_for_maint
+ vehicle_env_probe_status_for_maint

vehicle_env_probe_data_for_infrastructure_maint

This data flow consists of environmental probe data collected at the roadside for further processing to determine the condition of the infrastructure and is sent to the Manage Maintenance and Construction function. For each vehicle, the data includes unique vehicle identifiers, measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, ALB status, and other collected vehicle system status and sensor information. It consists of the following data items each of which is defined in its own DDE:

list_size
+ station_id
+ list_size {vehicle_env_probe_data}

vehicle_env_probe_data_for_isp

This data flow consists of environmental probe data collected at the roadside for further processing by the Provide Driver and Traveler Services function to determine environmental conditions. For each vehicle, the data includes unique vehicle identifiers, measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, ALB status, and other collected vehicle system status and sensor information. Both current data and snapshots of recent events (e.g., traction control or anti-lock brake system activations) may be reported. It consists of the following data items each of which is defined in its own DDE:

list_size
+ station_id
+ list_size {vehicle_env_probe_data}

vehicle_env_probe_data_for_maint

This data flow consists of environmental probe data collected at the roadside and is sent to the Manage Maintenance and Construction function for further processing to determine environmental conditions. For each vehicle, the data includes unique vehicle identifiers, measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, ALB status, and other collected vehicle system status and sensor information. Both current data and snapshots of recent events (e.g., traction control or anti-lock brake system activations) may be reported. It consists of the following data items each of which is defined in its own DDE:

list_size
+ station_id
+ list_size {vehicle_env_probe_data}

vehicle_env_probe_data_output

This data flow contains the data obtained from vehicle environmental probes, processed and formatted for output to other vehicles as they pass by.

vehicle_env_probe_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of the environmental probe field equipment for the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can assess

the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

vehicle_env_probe_input_data

This data flow consists of environmental probe data collected at the roadside for further processing to determine environmental conditions. For each vehicle, the data includes unique vehicle identifiers, measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, ALB status, and other collected vehicle system status and sensor information. It consists of the following data items each of which is defined in its own DDE:

list_size
+ station_id
+ list_size {vehicle_env_probe_data}

vehicle_env_probe_status_for_isp

This data flow provides the operational status (state of the device, configuration, and fault data) of the vehicle environmental probe field equipment to the Provide Driver and Traveler Services function. It consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity
+ station_id

vehicle_env_probe_status_for_maint

This data flow provides the operational status (state of the device, configuration, and fault data) of the vehicle environmental probe field equipment for the Manage Maintenance and Construction function It consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity
+ station_id

vehicle_env_sensor_output

This data flow provides outputs from environmental sensors onboard a vehicle used to determine environmental conditions, including the measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, ALB status, and other vehicle system status and sensor information that can be used to estimate environmental conditions.

vehicle_evacuation_traveler_information

This data flow contains evacuation information to be disseminated to the traveler using an in-vehicle unit. This data flow consists of the following item which is defined in its own DDE:

evacuation_data_for_isp

vehicle_event_alert

This data flow contains traveler alerts that report regionally relevant special events, and may include the event type, start/end times, event attendance, expected traffic impact), and other information that may impact the traveler in a vehicle. Alerts are provided to a traveler's in-vehicle device based on traveler-supplied subscriptions including the traveler's location, search radius, drive route, or timeframe, as well as configurable alert thresholds (e.g., severity of the alert). It consists of the following data item which is defined in its own DDE:

event_alert

vehicle_event_alert_subscriptions

This data flow contains a traveler's subscription for special event alerts, and may include other parameters such as the traveler's location, search radius, drive route, or timeframe. It may also contain configurable alert thresholds (e.g., severity of the alert).

vehicle_event_information_request

This data flow contains a request for event information from a traveler's in-vehicle device. It consists of the following items each of which is defined in its own DDE:

event_information_request
+ vehicle_location

vehicle_fleet_status_for_personnel

This data flow is used by the fleet management function to report the status of the fleet of maintenance and construction vehicles to center personnel. It includes for each vehicle the type, equipment configuration, location, operational status, maintenance record, work activity status, and crew/operator status. Additionally, incident information and road network information are included. The data flow consists of the following data items each which is defined in its own DDE:

m_and_c_fleet_status
+ m_and_c_view_of_road_network

vehicle_fleet_status_for_scheduler

This data flow is used by the fleet management function to report the status of the fleet of its vehicles to assist in scheduling maintenance and construction activities. It includes for each vehicle the type, equipment configuration, location, operational status, maintenance record, work activity status, and crew/operator status. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_fleet_status

vehicle_guidance_probe_data

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Traffic function and contains the time at which a vehicle was at a route segment end point. This data will be used to calculate the actual vehicle journey time for the route segment. The data flow consists of the following data items each of which is defined in its own DDE:

route_segment_identity
+ time
+ vehicle_identity

vehicle_guidance_probe_data_for_archive

This data flow is sent from the Provide Driver and Traveler Services function and contains the time at which a vehicle was at a route segment end point. This data, appropriate for archival, could be used to calculate the actual vehicle journey time for the route segment. The data flow consists of the following data items each of which is defined in its own DDE:

route_segment_identity
+ time
+ vehicle_identity

vehicle_guidance_route

This data flow is used within the Provide Driver and Traveler Services function and is a special form of 'route' for vehicle guidance only. It contains a subset of the data items included in the 'route' data flow to meet the requirements of in-vehicle infrastructure based guidance as opposed to the more general requirements for a route needed as part of a trip planning activity. This data flow includes the information required to provide an initial route or a route change while en route. The data flow consists of the following data items each of which is defined in its own DDE:

route_identity
+ route_segment_number{route_segment_description
    + route_segment_end_point
    + route_segment_estimated_travel_time
    + route_segment_report_position_points
    + route_segment_start_point}
+ vehicle_identity

vehicle_guidance_route_accepted

This data flow is used within the Provide Driver and Traveler Services function and contains the acceptance by the driver of the previously provided route for on-line guidance. Acceptance must be provided before guidance can begin. The data flow consists of the following data item which is defined in its own DDE:

route_identity

vehicle_guidance_stored_data

This data flow is used within the Provide Driver and Traveler Services function and contains the route provided to a vehicle that is using dynamic guidance. This data is loaded into a store and provides information about which routes are being used. The identity of the vehicle is removed for privacy reasons. The data flow consists of the following data items each of which is defined in its own DDE:

route_identity
+ route_segment_number{route_segment_description
    + route_segment_end_point
    + route_segment_estimated_travel_time
    + route_segment_report_position_points
    + route_segment_start_point}

vehicle_headway

This data item contains the measure of time between two successive vehicles in a traffic lane as they pass a point on the roadway. Measurements are taken from front bumper of vehicle to front bumper of other vehicle in seconds.

vehicle_headway_control_data

This data store is used within the Provide Vehicle Monitoring and Control function. It contains the vehicle headway data for use in the automatic control of the vehicle when it is operating as part of a platoon, or on automatic vehicle operations lanes. It consists of the following items of data each of which is defined in its own DDE:

avo_headway
+ vehicle_standard_headway

vehicle_headway_data
This data flow contains the headway to be used by a vehicle over its entire speed range. The data flow value may be set up during the vehicle's manufacture, or by the Manage Demand facility in the Manage Traffic function. This second set of values will override the first set when received by a vehicle.

vehicle_id_for_mcv
This data flow is used within the Manage Maintenance and Construction function and contains the unique vehicle identification number assigned to each maintenance and construction vehicle.

vehicle_identity
This data flow contains the identity of a vehicle that may be stored electronically on the vehicle and compared with license data.

vehicle_identity_for_collision_notification_store
This data store is used for vehicle identification in the event of a collision. It is built into the vehicle during the course of its manufacture and contains the vehicle's identity number. It consists of the following item which is defined in its own DDE:

vehicle_identity

vehicle_identity_for_driver_security_store
This data store provides the vehicle identity for personal driver security messages and is built into the vehicle during the course of its manufacture. It contains the vehicle's identity number. It consists of the following item which is defined in its own DDE:

vehicle_identity

vehicle_identity_for_vmt
This data flow is sent by the Provide Vehicle Control and Monitoring function to the Provide Open Road Tolling function for use by center processes for calculation of road use charges. It contains the identity of the vehicle from which other data such as ownership, vehicle type, plus data from payment administrators and financial institutions can be obtained. The data flow consists of the following data item which is defined in its own DDE:

vehicle_identity

vehicle_identity_for_vmt_from_roadway
This data flow is used within the Provide Open Road Tolling function from roadway processes for use by center processes for calculation of road use charges. It contains the identity of the vehicle from which other data such as ownership, vehicle type, plus data from payment administrators and financial institutions can be obtained. The data flow consists of the following data item which is defined in its own DDE:

vehicle_identity

vehicle_identity_for_vmt_roadway
This data flow is sent by the Provide Vehicle Control and Monitoring function to the Provide Open Road Tolling function for use by roadway processes. It contains the identity of the vehicle from which other data such as ownership, vehicle type, plus data from payment administrators and financial institutions can be obtained. The data flow consists of the following data item which is defined in its own DDE:

vehicle_identity

vehicle_incident_alert
This data flow contains traveler alerts that report regionally relevant incidents, and may include the incident type, expected duration, expected traffic impact, and other information that may impact the traveler in a vehicle. Alerts are provided to a traveler's in-vehicle device based on traveler-supplied subscriptions including the traveler's location, search radius, drive route, or timeframe, as well as configurable alert thresholds (e.g., severity of the alert). It consists of the following data item which is defined in its own DDE:

incident_alert

vehicle_incident_alert_subscriptions
This data flow contains a traveler's subscription for incident alerts, and may include other parameters such as the traveler's location, search radius, drive route, or timeframe. It may also contain configurable alert thresholds (e.g., severity of the alert).

vehicle_incident_information_request
This data flow contains a request for incident information from a traveler's in-vehicle device. It consists of the following items each of which is defined in its own DDE:

incident_information_request
+ vehicle_location

vehicle_information
This data flow is sent from the Provide Vehicle Monitoring and Control function to the Provide Driver and Traveler Services function and contains data for output to the driver, automatic inclusion in driver messages (e.g. mayday), or a request for a route involving automated lanes. It consists of the following data items each of which is defined in its own DDE:

avo_route_request

+ emergency_message_auto_output
+ position_warnings
+ safety_warnings
+ vehicle_control_status
+ vision_data
+ vehicle_status_details_for_broadcast
+ vehicle_status_details_for_driver_security

vehicle_information_request

This data flow is used within the Provide Traveler Information Services function and contains a request for traffic, transit, incidents, and other traveler information by a traveler from an in-vehicle device. This request will also be used to sort and filter the data. It consists of the following items each of which is defined in its own DDE:

vehicle_traffic_data_request
+ vehicle_transit_data_request
+ vehicle_incident_information_request
+ vehicle_weather_data_request
+ vehicle_event_information_request
+ vehicle_parking_data_request
+ vehicle_multimodal_data_request
+ vehicle_price_data_request

vehicle_information_request_for_response

This data flow contains the requests that drivers have made for traveler information, traveler alerts, emergency information, and yellow pages data. This data consists of the following items each of which is defined in its own DDE:

vehicle_information_request
+ vehicle_emergency_information_request
+ vehicle_travel_services_data_request
+ vehicle_alert_subscriptions

vehicle_input_data

This data is used within the Provide Driver and Traveler Services function and contains a vehicle route for guidance purposes and data about link journey times that is generated by and sent from centralized functions to the vehicle for use by the autonomous guidance process. It consists of the following data items each of which is defined in its own DDE:

link_and_queue_data
+ vehicle_guidance_route

vehicle_interactive_border_data

This data flow contains border crossing information, processed for traveler consumption, to be disseminated to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

border_data_for_interactive

vehicle_interactive_event_information

This data flow contains event information, processed for traveler consumption, to be disseminated to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

event_information_for_interactive

vehicle_interactive_incident_information

This data flow contains incident information, processed for traveler consumption, to be disseminated to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

incident_information_for_interactive

vehicle_interactive_multimodal_data

This data flow contains multimodal travel services information, processed for traveler consumption, to be disseminated to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

multimodal_data_for_interactive

vehicle_interactive_parking_data

This data flow contains parking information, processed for traveler consumption, to be disseminated to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

parking_data_for_interactive

vehicle_interactive_price_data

This data flow contains price information, processed for traveler consumption, to be disseminated to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

price_data_for_interactive

vehicle_interactive_traffic_data
This data flow contains traffic information, processed for traveler consumption, to be disseminated to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

traffic_data_for_interactive

vehicle_interactive_transit_data
This data flow contains transit information, processed for traveler consumption, to be disseminated to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

transit_data_for_interactive

vehicle_interactive_weather_data
This data flow contains weather information, processed for traveler consumption, to be disseminated to a traveler's in-vehicle device. This data flow consists of the following item which is defined in its own DDE:

weather_data_for_interactive

vehicle_license
This data flow is used within the Manage Traffic function and contains the data read from a vehicle which may be used to identify state, province, or other origin data as well as the vehicle license number.

vehicle_location
This data flow is used within the Provide Driver and Traveler Services function and contains the vehicle's location as supplied by a Location Data Source. This is a low precision data flow that has sufficient accuracy for filtering traveler and driver in-vehicle data to make it relevant to the current geographic area where the vehicle is located. It consists of the following data item which is defined in its own DDE:

location_identity

vehicle_location_analysis_outputs
This data flow contains results from vehicle location tracking analysis, such as average speed, etc.

vehicle_location_for_advisories
This data flow is used within the Provide Driver and Traveler Services function and contains the vehicle's location as supplied by a Location Data Source. This is a low precision data flow that has sufficient accuracy for filtering traveler and driver in-vehicle advisory data to make it relevant to the current geographic area where the vehicle is located. It consists of the following data item which is defined in its own DDE:

location_identity

vehicle_location_for_autonomous_guidance
This data flow is used within the Provide Driver and Traveler Services function and contains the vehicle's location as supplied by a Location Data Source. This is a high precision data flow that enables the location of the vehicle to be pin-pointed to a high degree of accuracy and is used for in-vehicle autonomous guidance purposes. It consists of the following data item which is defined in its own DDE:

location_identity

vehicle_location_for_cv
This data flow contains the vehicle location data for use in reporting on-board data to the commercial vehicle fleet manager. The data is as supplied by a Location Data Source. The data flow consists of the following data item which is defined in its own DDE:

location_identity

vehicle_location_for_dynamic_guidance
This data flow is used within the Provide Driver and Traveler Services function and contains the vehicle's location as supplied by a Location Data Source. This is a high precision data flow that enables the location of the vehicle to be pin-pointed to a high degree of accuracy and is used for in-vehicle dynamic guidance purposes. It consists of the following data item which is defined in its own DDE:

location_identity

vehicle_location_for_emergencies
This data flow is used within the Provide Driver and Traveler Services function. It contains the vehicle's location as supplied by a Location Data Source. This is a high precision data flow that enables the location of the vehicle to be pin-pointed to a high degree of accuracy and is used to provide the destination for the emergency services when they respond to an emergency call-out message generated on-board a vehicle by its driver. It consists of the following data item which is defined in its own DDE:

location_identity

vehicle_location_for_emergency_services
This data flow contains a vehicle's location supplied by a Location Data Source. This is a high precision data flow that enables the

location (including the vector of direction and speed) of an emergency vehicle to be pinpointed to a high degree of accuracy by the Manage Emergency Services function. It consists of the following data item which is defined in its own DDE:

location_identity

vehicle_location_for_incidents

This data flow is used within the Provide Driver and Traveler Services function. It contains the vehicle's location as supplied by a Location Data Source. This is a high precision data flow that enables the location of the vehicle to be pin-pointed to a high degree of accuracy and is used to provide the destination for the emergency services when they respond to an emergency call-out message automatically generated by the vehicle due to a crash or problem with the status of its cargo. It consists of the following data item which is defined in its own DDE:

location_identity

vehicle_location_for_mcv

This data flow contains a vehicle's location as supplied by a Location Data Source. This is a high precision data flow that enables the location of a maintenance and construction vehicle to be pin-pointed to a high degree of accuracy. It consists of the following data item which is defined in its own DDE:

location_identity

vehicle_location_for_mcv_operator

This data flow contains the current location of a maintenance and construction vehicle, together with the time and date to which the location applies for presentation to the vehicle operator. It consists of the following data item which is defined in its own DDE:

vehicle_location_for_mcv
+ date
+ time

vehicle_location_for_mcv_tracking

This data flow is within the Manage Maintenance and Construction function and contains the current location of a maintenance and construction vehicle, together with the time and date to which the location applies for use in tracking the maintenance and construction vehicle fleet. It consists of the following data item which is defined in its own DDE:

vehicle_location_for_mcv
+ vehicle_id_for_mcv
+ date
+ time

vehicle_location_for_mcv_tracking_history

This data flow is within the Manage Maintenance and Construction function and contains the history of the location of a maintenance and construction vehicle for tracking purposes. It consists of the following data items each of which is defined in its own DDE:

list_size{vehicle_location_for_mcv_tracking
+ date
+ time}

vehicle_location_for_probe_data

This data flow is used within the Provide Driver and Traveler Services function and contains the vehicle's location as supplied by a Location Data Source. This is a low precision data flow that has sufficient accuracy for filtering traveler and driver in-vehicle advisory data to make it relevant to the current geographic area where the vehicle is located. It consists of the following data item which is defined in its own DDE:

location_identity

vehicle_location_for_vmt

This data flow is sent by the Provide Vehicle Control and Monitoring function to the Provide Open Road Tolling function and contains the vehicle's location as supplied by a Location Data Source for use by center processes in calculation of road use charges. The data should be accurate enough to distinguish between adjacent roads and adjacent lanes. The data flow consists of the following data item which is defined in its own DDE:

location_identity

vehicle_location_for_vmt_from_roadway

This data flow is used within the Provide Open Road Tolling function and contains the vehicle's location from roadway processes for use by center processes for calculation of road use charges. The data should be accurate enough to distinguish between adjacent roads and adjacent lanes. The data flow consists of the following data item which is defined in its own DDE:

location_identity

vehicle_location_for_vmt_roadway

This data flow is sent by the Provide Vehicle Control and Monitoring function to the Provide Open Road Tolling function and contains the vehicle's location as supplied by a Location Data Source for use by roadway processes in calculation of road use

charges. The data should be accurate enough to distinguish between adjacent roads and adjacent lanes. The data flow consists of the following data item which is defined in its own DDE:

location_identity

vehicle_map_database
This data flow is used by the Provide Driver and Traveler Services function. It contains details of the physical geometry of each road segment, including the location of such things as road signs, bends, junctions, traffic lanes and their use, etc. For each route segment, it also contains the historical average link journey time and queuing time computed from data recorded over the last several months, and available for different time of the day/days of the week, to take account of peak travel times, weekend travel etc.

vehicle_motion_data
This data flow is used within the Provide Vehicle Monitoring and Control function and contains data about the motion of a vehicle, e.g. forwards, to the left, etc.

vehicle_multimodal_alert
This data flow contains traveler alerts that report regionally relevant ferry, air, and rail service disruptions and may include port closures, general delays, and other information that may impact the traveler in a vehicle. Alerts are provided to a traveler's in-vehicle device based on traveler-supplied subscriptions including the traveler's location, search radius, or timeframe, as well as configurable alert thresholds (e.g., severity of the alert). It consists of the following data item which is defined in its own DDE:

multimodal_alert

vehicle_multimodal_alert_subscriptions
This data flow contains a traveler's subscription for ferry, air, and rail service disruption alerts, and may include other parameters such as the traveler's location, search radius, or timeframe. It may also contain configurable alert thresholds (e.g., severity of the alert).

vehicle_multimodal_data_request
This data flow contains a request for multimodal travel services information from a traveler's in-vehicle device. It consists of the following items each of which is defined in its own DDE:

multimodal_data_request
+ vehicle_location

vehicle_object_detection_sensor_control
This data flow provides control commands for object detection sensors located on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ object_sensor_control_data}

vehicle_object_detection_sensor_data
This data flow contains actual sensor readings collected from object detection sensors located on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ object_sensor_data_collected}

vehicle_object_detection_sensor_data_for_field_proc
This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from object detection sensors located on-board a transit vehicle. This data is intended to be processed further at the collection site prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ sensor_identity
+ object_sensor_data_collected

vehicle_object_detection_sensor_status
This data flow is used within the Manage Emergency Services function to report the operational status (state of the sensor device, configuration, and fault data) of an object detection sensor located on-board a transit vehicle. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ sensor_device_status}

vehicle_occupancy
This data item contains a count of the time for which a vehicle occupied the point in the surface street or highway at which a detector is located. The data is measured in seconds and may subsequently be converted to give a percentage value, the percentage of time for which the detector was occupied by a vehicle.

vehicle_occupants_detected
This data flow from the Provide Vehicle Monitoring and Control to indicate the number of occupants (driver + passengers) detected on-board.

vehicle_output_data
This data is flow used within the Provide Driver and Traveler Services function and contains a request for on-line guidance and probe data which is sent from the vehicle to a centralized point for processing. It consists of the following data items each of which is defined in its own DDE:

vehicle_guidance_route_accepted
+ vehicle_route_request

vehicle_parking_alert
This data flow contains traveler alerts that report regionally relevant parking availability and may include lot closures, lot full/nearly full status, and other information that may impact the traveler in a vehicle. Alerts are provided to a traveler's in-vehicle device based on traveler-supplied subscriptions including the traveler's location, search radius, or timeframe, as well as configurable alert thresholds (e.g., lot is full or nearly full). It consists of the following data item which is defined in its own DDE:

parking_alert

vehicle_parking_alert_subscriptions
This data flow contains a traveler's subscription for parking availability alerts, and may include other parameters such as the traveler's location, search radius, or timeframe. It may also contain configurable alert thresholds (e.g., lot is full or nearly full).

vehicle_parking_data_request
This data flow contains a request for parking information from a traveler's in-vehicle device. It consists of the following items each of which is defined in its own DDE:

parking_data_request
+ vehicle_location

vehicle_parking_lot_characteristic_data
This data flow is used within the Provide Electronic Payment Services function and contains data obtained from a vehicle at a parking lot charge payment point. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ vehicle_characteristics

vehicle_payment_confirmation
This data flow is used within the Provide Driver and Traveler Services function to indicate the payment for a confirmed trip has been successfully completed, or that the total cost can now be deducted from the credit stored on the traveler's traveler card/ payment instrument. The request for payment will have been initiated by input from a vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

advanced_tolls_confirm
+ advanced_fares_confirm
+ advanced_traveler_charges_confirm
+ credit_identity
+ stored_credit
+ traveler_identity
+ traveler_total_trip_cost

vehicle_payment_data_for_tolls
This data flow is used within the Provide Electronic Payment Services function and provides the user identity for toll payment. It consists of the following data items each of which is defined in its own DDE:

toll_vehicle_payment_data
+ vehicle_identity

vehicle_payment_for_charges
This data flow is used within the Provide Electronic Payment Services function and provides the user identity for parking lot payment. It consists of the following data items each of which is defined in its own DDE:

parking_lot_vehicle_payment_data
+ vehicle_identity

vehicle_payment_information
This data flow is used within the Provide Driver and Traveler Services function. It contains details of the components of a trip which a traveler has obtained from the input of data in a vehicle and for which advanced payment is needed following trip confirmation. The traveler's identity and credit identity or stored credit from the traveler card / payment instrument are therefore also included to enable payment to be made. The data flow consists of the following items each of which is defined in its own DDE:

credit_identity
+ traveler_identity

+ parking_space_details
+ ride_segments
+ stored_credit
+ toll_route_segments

vehicle_payment_information_for_services

This data flow is used within the Provide Driver and Traveler Services function. It contains details of the components of a trip which a driver has obtained from the input of data via a vehicle and for which advanced payment is needed following trip confirmation. The traveler's identity and credit identity or stored credit from the traveler card / payment instrument are therefore also included to enable payment to be made. The data flow consists of the following items each of which is defined in its own DDE:

credit_identity
+ travel_services_requested
+ stored_credit

vehicle_permit_request

This data flow contains information to electronically register for a commercial vehicle permit for overweight or dangerous goods (HAZMAT) shipment.

vehicle_price_data_request

This data flow contains a request for price information from a traveler's in-vehicle device. It consists of the following items each of which is defined in its own DDE:

price_data_request
+ vehicle_location

vehicle_probe_data

This data store consists of the traffic probe data collected from ITS-equipped personal vehicles (directly from the vehicles and via field equipment), electronic toll collection operations, and from tracking transit vehicles, including aggregated route segment usage and travel times as well as environmental probe data. The data flow consists of the following items each of which is defined in its own DDE:

env_probe_data_from_vehicle
+ traffic_probe_data_from_vehicle
+ vehicle_env_probe_data_for_isp
+ vehicle_traffic_probe_data_for_isp
+ guidance_probe_data_from_vehicle
+ toll_probe_data_for_isp
+ transit_probe_data_for_isp

vehicle_probe_data_and_status_for_isp

This data flow consists of traffic and environmental probe data and status collected at the roadside for further processing by the Provide Driver and Traveler Services function to determine traffic and environmental conditions. It consists of the following data items each of which is defined in its own DDE:

vehicle_traffic_probe_data_for_isp
+ vehicle_traffic_probe_status_for_isp
+ vehicle_env_probe_data_for_isp
+ vehicle_env_probe_status_for_isp

vehicle_probe_data_source_identity

This data flow is used within the Manage Traffic function. It contains the identity of the roadside unit that has collected particular vehicle probe data. The data flow consists of the following data item which is defined in its own DDE:

unit_number

vehicle_probe_data_source_location

This data flow is used within the Manage Traffic function. It contains the location of the roadside unit that has collected particular vehicle probe data. The data flow consists of the following data item which is defined in its own DDE:

location_identity

vehicle_probe_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of the vehicle probe equipment for the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can assess the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

vehicle_traffic_probe_equip_status_for_m_and_c
+ vehicle_env_probe_equip_status_for_m_and_c

vehicle_profile

This data flow contains the personal profile of a traveler in a vehicle (e.g. equipment capabilities, personal preferences) for obtaining traveler information (traffic, transit, multimodal, emergency, yellow pages, etc.), trip plans, and route selection and

guidance information. This profile is submitted one time and then used to generate future information. It consists of the following data items each of which is defined in its own DDE:

traveler_contact_setting
+ traveler_device_setting
+ traveler_identity
+ traveler_preference_setting

vehicle_proximity_data
This data flow is used within the Provide Vehicle Control and Monitoring function and contains information on the closeness of any other vehicle or object to the vehicle in any direction.

vehicle_queue_length
This data item contains a measure of the length of queue as measured by a traffic sensor. This may be on the roadway (surface street or highway), or at specific locations such as the entrance to a parking lot. The data contains the approximate number of vehicles, based on the average vehicle length and the position of the detector relative to a fixed point from which the queue needs to be measured.

vehicle_regular_data
This data store is used within the Provide Driver and Traveler Services function to hold items of data which are regularly used as part of traveler inputs to a device in a vehicle, such as the home location of the traveler which may act as the origin for trip requests, traveler identity which is used to identify data requests within the function and the traveler's credit identity which enables payment for advanced charges and other services.

vehicle_requests_and_confirmation
This flow within the Provide Driver and Traveler Services function sends trip requests, payment information and confirmations to the Provide Trip Planning Services function. It consists of the following items each of which is defined in its own DDE:

vehicle_trip_request
+ vehicle_payment_information
+ vehicle_trip_confirmation

vehicle_roadside_safety_data
This data flow provides the Manage Traffic function with information from on-board vehicle sensors. This data may describe the location, speed, and conditions of the vehicle itself as well as the conditions around the vehicle - environmental, traffic, etc.

vehicle_route
This data flow is used within the Provide Driver and Traveler Services function and is a special form of 'route' for vehicles only. It may also have special forms and ultimate destinations depending on the type of vehicle and type of route (see 'modes') and contains the following item which is defined in its own DDE:

route

vehicle_route_guidance_data_attributes
This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data attribute information to the data archive about the vehicle routes used by vehicles using dynamic guidance and vehicle journey time information. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

vehicle_route_guidance_data_for_archive
This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about the vehicle routes which are currently being requested and used by vehicles (private and commercial) using dynamic guidance

and vehicle journey time information. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{vehicle_route_request
+ vehicle_guidance_route_accepted
+ cf_route_request
+ cv_route_request
+ vehicle_guidance_stored_data}

vehicle_route_request

This data is flow used within the Provide Driver and Traveler Services function and contains a request for on-line guidance of the vehicle. This will have been generated by the driver and will include the necessary source and destination data from which a route can be computed. It consists of the following data items each of which is defined in its own DDE:

constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_special_needs
+ constraint_on_load_classification
+ constraint_on_avo_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type
+ destination
+ departure_time
+ desired_arrival_time
+ origin
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ vehicle_location_for_dynamic_guidance
+ vehicle_identity

vehicle_safety_data_indication

This data flow contains the data from a vehicle on-board system, e.g. safety monitoring system or environmental probe, processed to provide an indication of the type of hazard that the vehicle found on the road or freeway. The indication may include: bridge down, i.e. broken, or in some way hazardous to traffic; earth or mud slide; fog, smoke or mist reducing visibility; the road surface is icy; road covered by a liquid, e.g. oil, which makes it hazardous to traffic; obstacle on road, e.g. fallen tree, telegraph pole, etc.; road subsidence, i.e. part of the road surface has fallen away. This data may also include indications of approaching traffic in the vicinity, including wrong way drivers.

vehicle_safety_input_data

This data flow provides the vehicle probe, vehicle safety data, and local environmental conditions information to roadside sensors. This data may be include precipitation, fog, temperature data, traffic anomalies or hazards, to assist cooperative vehicle safety systems.

vehicle_safety_status

This data flow contains data about the extent of a vehicle's collision damage.

vehicle_secure_area_audio

This data flow is used within the Manage Emergency Services function and contains the direct audio output of surveillance equipment on-board a transit vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_audio

vehicle_secure_area_audio_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the direct audio output of surveillance equipment on-board a transit vehicle. This data is intended to be processed further at the collection site prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_audio

vehicle_secure_area_field_proc_parameters

This data flow is used within the Manage Emergency Services function and contains the information required to control the sensor and surveillance data processing occurring on-board a transit vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_secure_area_surveillance_field_proc_parameters
+ vehicle_secure_area_sensor_field_proc_parameters

vehicle_secure_area_images

This data flow is used within the Manage Emergency Services function and contains the direct high-resolution digitized image

output of surveillance equipment on-board a transit vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image

vehicle_secure_area_images_for_field_proc
This data flow is used within the Manage Emergency Services function and contains the direct high-resolution digitized image output of surveillance equipment on-board a transit vehicle. This data is intended to be processed at the collection site further prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image

vehicle_secure_area_sensor_field_proc_parameters
This data flow contains parameters to define how the sensor data collected from on-board a transit vehicle is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing at the collection point and include threat sensors and object detection sensors.

vehicle_secure_area_sensor_threat_data
This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from sensor systems on-board transit vehicles. This data is collected from threat sensors and object detection sensors, and could include an alarm indicating that a threshold has been met or a data pattern recognized. The data flow consists of the following data items each of which is defined in its own DDE:

sensor_threat_data
+ location_identity

vehicle_secure_area_surveillance_control
This data flow is used within the Manage Emergency Services function and contains control parameters for closed circuit television (cctv) and audio systems located on-board a transit vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_video_control
+ secure_area_audio_control

vehicle_secure_area_surveillance_control_from_transit_operator
This data flow is used within the Manage Emergency Services function and contains control parameters input by a transit vehicle operator for closed circuit television (cctv) and audio systems located on-board a transit vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

surveillance_device_type_identity
+ video_control_data
+ audio_control_data

vehicle_secure_area_surveillance_field_proc_parameters
This data flow contains parameters to define how the surveillance data collected from on-board a transit vehicle is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing at the collection point.

vehicle_secure_area_surveillance_for_transit_operator
This data flow is used within the Manage Emergency Services function and contains the direct high-resolution digitized image and audio output of surveillance equipment on-board a transit vehicle for use by the transit vehicle operator. The data flow consists of the following data items each of which is defined in its own DDE:

surveillance_device_type_identity
+ secure_video_image
+ secure_audio

vehicle_secure_area_surveillance_status
This data flow is used within the Manage Emergency Services function and contains operational status (state of the device, configuration, and fault data) information from closed circuit television (cctv) and audio systems located on-board a transit vehicle. This data flow contains an indication that a fault has been found with the collection of video or audio data by the device. The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_video_status
+ secure_area_audio_status
+ transit_vehicle_identity

vehicle_secure_area_surveillance_threat_data
This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from surveillance systems on-board transit vehicles. This data could include an alarm indicating that a

threshold has been met or an audio or video pattern recognized. The data flow consists of the following data items each of which is defined in its own DDE:

surveillance_threat_data
+ transit_vehicle_identity
+ location_identity

vehicle_security_status

This data flow contains the status of the vehicle's security systems, which include the lock system and/or alarm system. This data flow could be a coded representation of the status (e.g. LE- locks engaged, LD-locks disengaged).

vehicle_security_system_commands

This data flow is sent from the Manage Emergency Services function to allow mayday service providers the ability to send commands to a vehicle. These commands include changing the security settings such as operating the door locks or disabling an alarm system remotely.

vehicle_security_system_commands_request

This data flow is sent from the Provide Vehicle Monitoring function to the Manage Emergency Services function to allow mayday service providers to send security functions of a vehicle requesting mayday support. These commands include changing the security settings such as operating the door locks or disabling an alarm remotely.

vehicle_sign_data

This data flow contains data for use in producing in-vehicle signage displays, including the actual roadside traffic indicator outputs, fixed signage (e.g., Stop signs, yield signs), roadside dynamic message signs (DMS) information, highway rail intersection (HRI) crossing status, and local conditions warnings identified by local environmental sensors. All data is filtered so that the receiving processes only get that which is relevant to their local geographic area. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{vehicle_signage_output_identity
    + vehicle_signage_output_data
    + vehicle_signage_alert_data
    + vehicle_signage_hri_data
    + vehicle_signage_traffic_data
    + vehicle_signage_evacuation_data
    + vehicle_signage_traffic_metering_data
    + vehicle_signage_variable_speed_limit_data}

vehicle_sign_data_for_highways

This data flow is used within the Manage Traffic function. It contains the actual data from which in-vehicle signage data can be produced for output by transmission units located at the roadside on freeways in the geographic and/or jurisdictional area(s) served by the function. The data flow consists of the following items each of which is defined in its own DDE:

indicator_control_data_for_traffic_metering

vehicle_sign_data_for_roads

This data flow is used within the Manage Traffic function. It contains the actual data from which in-vehicle signage data can be produced for output by transmission units located at the roadside on roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. The data flow consists of the following items each of which is defined in its own DDE:

indicator_control_data_for_roads

vehicle_sign_data_output_location

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveler Services function and contains the location of the equipment that is outputting in-vehicle signage data. The data flow consists of the following data item which is defined in its own DDE:

location_identity

vehicle_sign_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of roadside equipment that supports in-vehicle signage. By monitoring this data flow, the receiving process in the Manage Maintenance and Construction function can monitor the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

vehicle_sign_status

This data flow provides the operational status (state of the device, configuration, and fault data) of roadside equipment that supports in-vehicle signage for the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

station_id

+ device_identity

vehicle_signage_alert_data

This data flow is sent to the Manage Traffic function to provide notification of a major emergency such as a natural or man made disaster, civil emergency, or child abduction to be sent to the traffic operations personnel to be displayed within vehicles. It consists of the following data items each of which is defined in its own DDE:

wide_area_alert_notification_for_traffic

vehicle_signage_current_data

This data flow contains data that represents the actual roadside traffic indicator outputs, i.e. those from intersection traffic controllers, pedestrian controllers, etc. The indicator outputs will be replicated as in-vehicle signage displays, and will relate to the signs that are covered by each of the roadside broadcast processes. The data is presented to show the state of the indicator, e.g. stop, about to show stop (leaving amber), go, or not operating (proceed with caution).

vehicle_signage_data

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveler Services function. It contains data for use in producing in-vehicle signage displays, including the actual roadside traffic indicator outputs, fixed signage (e.g., Stop signs, yield signs), roadside dynamic message signs (DMS) information, and local conditions warnings identified by local environmental sensors. The data flow consists of the following data items each of which is defined in its own DDE:

barrier_info
+ vehicle_emissions_message
+ vehicle_sign_data_output_location
+ vehicle_signage_hri_data
+ vehicle_signage_output_data
+ vehicle_signage_speed_warning
+ vehicle_signage_individual_vehicle_speed
+ vehicle_signage_traffic_data
+ vehicle_signage_alert_data
+ vehicle_signage_evacuation_data
+ vehicle_signage_traffic_metering_data
+ vehicle_signage_variable_speed_limit_data
+ vehicle_signage_roadway_warning

vehicle_signage_dms_data

This data flow contains data that represents the output from actual roadside dynamic message signs (DMS). The DMS outputs will be replicated as in-vehicle signage displays, and will relate to the signs that are covered by each of the roadside broadcast processes. The data is presented to represent the sign display.

vehicle_signage_emissions_testing_results

This data flow is sent from the Manage Traffic function to the Provide Vehicle Monitoring and Control function to inform the driver of the results of emissions testing that has been performed by roadside devices on their vehicle. It consists of the following data items each of which is defined in its own DDE:

vehicle_emissions_message

vehicle_signage_evacuation_data

This flow contains information regarding the evacuation for use by in-vehicle signage systems. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule

vehicle_signage_fixed_data

This data flow contains data that represents the actual roadside traffic fixed signs, i.e. those for STOP, YIELD and other types of sign. The sign outputs will be replicated as in-vehicle signage displays, and will relate to the signs that are covered by each of the roadside broadcast processes. The data is presented as a character code which represents the sign display, e.g. STOP, YIELD,

vehicle_signage_hri_data

This data flow contains data for use in producing in-vehicle signage displays pertaining to the status of a nearby Highway Rail Intersection (HRI) or train crossing. The data may include time a crossing is expected to close or an indication that an intersection is blocked.

vehicle_signage_individual_vehicle_speed

This data flow contains an indication of an individual vehicle's speed using in-vehicle signage.

vehicle_signage_operator_input

This data flow contains inputs from traffic operations personnel for use in producing in-vehicle signage messages. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{device_identity
+ station_id
+ vehicle_signage_output_message}

vehicle_signage_operator_status

This data flow provides the status of the in-vehicle signage displays to traffic operations personnel. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{device_identity
+ station_id
+ roadside_device_status
+ vehicle_sign_data}

vehicle_signage_output_data

This data flow contains data for use in producing in-vehicle signage displays, including the actual roadside traffic indicator outputs, fixed signage (e.g., Stop signs, yield signs), roadside dynamic message signs (DMS) information, and local conditions warnings identified by local environmental sensors. The data flow consists of one of the following data items each of which is defined in its own DDE:

[vehicle_signage_current_data | vehicle_signage_fixed_data | vehicle_signage_dms_data
| environmental_data_for_signage]

vehicle_signage_output_identity

This data flow is used within the Manage Traffic function to identify individual indicators used for the control of traffic on roads (surface streets) and highways. The indicators can be either intersection signal controllers, pedestrian signal controllers or dynamic message signs (DMS). The data flow consists of the following data items each of which is defined in its own DDE:

unit_number
+ location_identity

vehicle_signage_output_message

This data flow contains the information to be contained in the message broadcast to drivers using in-vehicle signage.

vehicle_signage_roadway_warning

This data flow contains warnings for drivers concerning potential roadway hazards, e.g., roadway weather conditions, road surface conditions, traffic congestion and queues, obstacles in the roadway.

vehicle_signage_speed_warning

This data flow contains a speed warning or safe speed advisory for in-vehicle signage. The message may indicate that the vehicle is exceeding the speed limit, how many miles per hour over the speed limit was measured, or a safe speed advisory based on environmental conditions and vehicle characteristics. The data flow consists of the following item which is defined in its own DDE:

vehicle_signage_traffic_data

This data flow is used within the Manage Traffic and Provide Driver and Traveler Services functions. It contains vehicle speed and occupancy data for a link that is in the area local to a process that outputs data for use by in-vehicle signage units. The data flow consists of the following data items each of which is defined in its own DDE:

link_identity
+ vehicle_occupancy
+ vehicle_speed

vehicle_signage_traffic_metering_data

This data flow is used within the Manage Traffic and Provide Driver and Traveler Services functions. It contains information for use by in-vehicle signage units to be distributed to drivers approaching a traffic meter (e.g., ramp meter), such as advance warning of the meter, its operational status (whether it is currently on or not, how many cars per green are allowed, etc.), lane usage at the meter (including a bypass lane for HOVs) and existing queue at the meter.

vehicle_signage_variable_speed_limit_data

This data flow is used within the Manage Traffic and Provide Driver and Traveler Services functions. It contains information for use by in-vehicle signage units to be distributed to drivers approaching a variable speed limit area and provides its operational status (whether it is currently on or not) and the current safe speed considering traffic and environmental conditions.

vehicle_speed

This data item contains the speed of a vehicle which has been detected by a detector located on the highway as the vehicle flowed over its sensor.

vehicle_speed_and_distance_for_vmt

This data flow is sent by the Provide Vehicle Control and Monitoring function to the Provide Open Road Tolling function for use by center processes for calculation of road use charges and contains a vehicle's road use history, including speed and distance.

vehicle_speed_and_distance_for_vmt_roadway

This data flow is sent by the Provide Vehicle Control and Monitoring function to the Provide Open Road Tolling function for use by roadway processes and contains a vehicle's road use history, including speed and distance.

vehicle_speed_control_data

This data flow is used within the Provide Vehicle Monitoring and Control function. It contains data for use in the automatic control of the vehicle. The data flow consists of the following items of data each of which is defined in its own DDE:

[avo_accel_decel_profile | vehicle_accel_decel_profile | avo_demand_accel_decel_profile]

vehicle_standard_headway
This data flow is used within the Provide Vehicle Monitoring and Control function. It provides the vehicle headway that is to be used when it operating as part of a platoon. The data is loaded into the vehicle during its manufacture and cannot be changed. It can however by overridden by data from the Manage Demand facility in the manage Traffic function, or by data from another vehicle in the platoon. The data flow consists of the following data item which is defined in its own DDE:

vehicle_headway_data

vehicle_status_details
This data flow contains the operational status of the vehicle as determined from on-board sensors. It consists of the following data items, each of which are defined by their own DDE's:

vehicle_security_status
+ vehicle_system_status

vehicle_status_details_for_broadcast
This data flow is sent from the Provide Vehicle Control and Monitoring function to the Provide Driver and Traveler Services function. It contains the operational status of the vehicle for output to the driver. The data flow consists of the following data item which is defined in its own DDE:

vehicle_status_details
+ vehicle_occupants_detected

vehicle_status_details_for_driver_security
This data flow is sent from the Provide Vehicle Control and Monitoring function to the Provide Driver and Traveler Services function. It contains the operational status of the vehicle for use in driver initiated emergency message output to the Manage Emergency Services function. The data flow consists of the following data item which is defined in its own DDE:

vehicle_status_details

vehicle_status_details_for_emergencies
This data flow is used within the Provide Vehicle Control and Monitoring function. It contains the vehicle's current status for use as part of the data output when it is involved in an emergency. The data flow consists of the following data item which is defined in its own DDE:

vehicle_status_details

vehicle_status_details_for_emissions
This data flow is sent from the Provide Vehicle Control and Monitoring function to the Manage Traffic function. It contains the operational status of the vehicle which is important because the levels of pollution vary according to how long the vehicle has been running, i.e. how warm is the engine, and what it is actually doing, e.g. is it stationary, or pulling away from a stop. The data flow consists of the following items each of which is defined in its own DDE:

vehicle_identity
+ vehicle_status_details
+ vehicle_system_status

vehicle_status_for_intersection
This data flow is sent from the Provide Vehicle Control and Monitoring function to the Provide Roadside Control Facilities function. It contains the operational status of the vehicle for including its approaching speed, direction, impending turning movements.

vehicle_status_traffic_inputs
This data flow is used to transfer data from the Manage Traffic function to the Provide Vehicle Monitoring and Control function. It contains data for use by processes involved in automatic vehicle operations lane management and vehicle control. The data flow consists of the following data items each of which is defined in its own DDE:

avo_control_data
+ intersection_collision_avoidance_data
+ roadside_safety_data_to_vehicle
+ traffic_sensor_data_for_automated_lane_changing
+ intersection_status_data_for_vehicle
+ vehicle_barrier_access_status
+ vehicle_traffic_probe_configuration

vehicle_status_update
This data flow is used by the Provide Driver and Traveler Services function to send additional data about a vehicle for an emergency declared by a driver to the Manage Emergency Services function.

vehicle_system_status
This data flow contains the operational status of various systems within the vehicle, such as braking, engine, and safety devices. This data flow could be a coded representation of the system status (e.g. engine not at operating temperature, driver in control of

the vehicle, vehicle under automatic control, vehicle in acceleration mode, i.e. speed increasing, vehicle in deceleration mode, i.e. speed decreasing, vehicle in braking mode, i.e. brakes on, potential vehicle fault, i.e. there is a fault but it doesn't affect operations, vehicle safety fault, i.e. the vehicle has a fault affecting its safety) or it could be a set of parameters with values

vehicle_systems_control_by_mc_center_personnel
This data flow is sent by the maintenance and construction center personnel interface function to provide control information to the systems on-board a maintenance and construction vehicle. It includes control data to support materials dispersion and other functions, depending upon the type of vehicle.

vehicle_systems_control_by_mcv_operator
This data flow is used by the maintenance and construction vehicle operator to control the systems on-board the vehicle, and includes control data to support materials dispersion and other functions, depending upon the type of vehicle.

vehicle_threat_sensor_control
This data flow provides control commands for threat sensors (e.g., thermal, acoustic, radiological, chemical) located on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ threat_sensor_control_data}

vehicle_threat_sensor_data
This data flow contains actual sensor readings collected from threat sensors (e.g., thermal, acoustic, radiological, chemical) located on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ threat_sensor_data_collected}

vehicle_threat_sensor_data_for_field_proc
This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from threat sensors (e.g., thermal, acoustic, radiological, chemical) located on-board a transit vehicle. This data is intended to be processed further at the collection site prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ sensor_identity
+ threat_sensor_data_collected

vehicle_threat_sensor_status
This data flow is used within the Manage Emergency Services function to report the operational status (state of the sensor device, configuration, and fault data) of a threat sensor (e.g., thermal, acoustic, radiological, chemical) located on-board a transit vehicle. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ sensor_device_status}

vehicle_toll_characteristic_data
This data flow is used within the Provide Electronic Payment Services function and contains data obtained from a vehicle at a toll payment point. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ vehicle_characteristics
+ cv_vehicle_characteristics

vehicle_toll_probe_data
This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function. It contains the smoothed average vehicle journey times for the route segment between two toll collection points, and the identity of the route segment. The data is used to calculate link journey times for in-vehicle guidance purposes. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{route_segment_identity
+ route_segment_journey_time_from_tolls}

vehicle_traffic_alert
This data flow contains traveler alerts that report regionally relevant traffic congestion, road work, or road closures and may average speeds, level of congestion, and other information that may impact the traveler in a vehicle. Alerts are provided to a traveler's in-vehicle device based on traveler-supplied subscriptions including the traveler's location, search radius, drive route, or timeframe, as well as configurable alert thresholds (e.g., level of congestion, average speed). It consists of the following data item which is defined in its own DDE:

traffic_alert

vehicle_traffic_alert_subscriptions

This data flow contains a traveler's subscription for traffic congestion, road work, or road closure alerts, and may include other parameters such as the traveler's location, search radius, drive route, or timeframe. It may also contain configurable alert thresholds (e.g., level of congestion, average speed).

vehicle_traffic_data_request

This data flow contains a request for traffic information from a traveler's in-vehicle device. It consists of the following items each of which is defined in its own DDE:

traffic_data_request

+ vehicle_location

vehicle_traffic_probe_configuration

This data flow provides vehicles within range of this Traffic Surveillance function with configuration information concerning how they are to provide their traffic probe data. It includes the start and end times for the data reporting, where the vehicle should report its probe data, and under what conditions probe data provision may be skipped (e.g. if the probe data is unchanged by a given threshold).

vehicle_traffic_probe_data

This data flow provides outputs from equipment onboard a vehicle used to determine traffic conditions, including a unique vehicle identifier, the vehicle's speed, and heading and snapshots of recent events including starts and stops, speed changes, and other information that can be used to estimate traffic conditions. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ time
+ list_size +
list_size{time + location_identity + speed + sensor_identity
+ vehicle_traffic_sensor_output}

vehicle_traffic_probe_data_aggregation

This data flow is produced by the Provide Driver and Traveler Services function and contains aggregated route usage, travel times, and other aggregated data collected from probe vehicles that can be used to estimate current traffic conditions. Sources of probe data include toll collection points, guided vehicles, vehicle traffic probes, and transit vehicle tracking. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{route_segment_identity
+ route_segment_travel_time
+ vehicle_traffic_sensor_output}

vehicle_traffic_probe_data_attributes

This data flow provides data attribute information to the data archive about vehicle traffic probe data collected from roadside equipment. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

vehicle_traffic_probe_data_for_archive

This data flow provides outputs from equipment onboard a vehicle used to determine traffic conditions. This data, appropriate for archival, includes a unique vehicle identifier, the vehicle's speed, and heading and snapshots of recent events including starts and stops, speed changes, and other information that can be used to estimate traffic conditions. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity

+ time + list_size +
list_size{sensor_identity
+ vehicle_traffic_sensor_output}

vehicle_traffic_probe_data_for_isp

This data flow consists of traffic probe data collected at the roadside for further processing by the Provide Driver and Traveler Services function to determine traffic conditions. For each vehicle, the data includes unique vehicle identifiers, the vehicle's speed, heading and snapshots of recent events including starts and stops, speed changes, and other information that can be used to estimate traffic conditions. It consists of the following data items each of which is defined in its own DDE:

list_size
+ station_id
+ list_size {vehicle_traffic_probe_data + vehicle_guidance_probe_data}

vehicle_traffic_probe_data_for_traffic

This data flow consists of traffic probe data collected at the roadside for further processing by the Manage Traffic function to determine traffic conditions. For each vehicle, the data includes unique vehicle identifiers, the vehicle's speed, heading and snapshots of recent events including starts and stops, speed changes, and other information that can be used to estimate traffic conditions. It consists of the following data items each of which is defined in its own DDE:

list_size
+ station_id
+ list_size {vehicle_traffic_probe_data
+ vehicle_guidance_probe_data}

vehicle_traffic_probe_equip_status

This data flow provides the operational status (state of the device, configuration, and fault data) of the vehicle traffic probe field equipment to the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity
+ station_id

vehicle_traffic_probe_equip_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of the vehicle traffic probe field equipment for the Manage Maintenance and Construction function. By monitoring this data flow, the receiving process can assess the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity
+ station_id

vehicle_traffic_probe_status_for_isp

This data flow provides the operational status (state of the device, configuration, and fault data) of the vehicle traffic probe field equipment to the Provide Driver and Traveler Services function. It consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity
+ station_id

vehicle_traffic_sensor_output

This data flow provides outputs from sensors onboard a vehicle used to determine traffic conditions, including the vehicle's speed, heading and snapshots of recent events including starts and stops, speed changes, and other information that can be used to estimate traffic conditions.

vehicle_transaction_confirmation

This data flow is used within the Provide Driver and Traveler Services function to confirm any reservations made by the traveler from an in-vehicle device. These reservations will be based on information obtained by the traveler from previous data input and output through the device. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ traveler_identity
+ transaction_number
+ travel_services_cost
+ travel_services_lodging_reservation_confirmation
+ travel_services_dining_reservation_confirmation
+ travel_services_ticket_purchase_confirmation

vehicle_transaction_request

This data flow is used within the Provide Driver and Traveler Services function and contains data input by the traveler in a vehicle to make reservations for various other travel services. It contains the following data items, each of which is defined in its own DDE:

traveler_identity

vehicle_transit_alert

This data flow contains traveler alerts that report regionally relevant transit service delays or service disruptions and may include bus stop closures, schedule delays, transit incidents, and other information that may impact the traveler in a vehicle who may be considering an alternate travel mode. Alerts are provided to a traveler's in-vehicle device based on traveler-supplied subscriptions including the traveler's location, search radius, bus route, bus stop, or timeframe, as well as configurable alert thresholds (e.g., schedule delay). It consists of the following data item which is defined in its own DDE:

transit_alert

vehicle_transit_alert_subscriptions

This data flow contains a traveler's subscription for transit service delays or service disruptions, and may include other parameters such as the traveler's location, search radius, bus route, bus stop, or timeframe. It may also contain configurable alert thresholds (e.g., schedule delay).

vehicle_transit_data_request

This data flow contains a request for transit information from a traveler's in-vehicle device. It consists of the following items each of which is defined in its own DDE:

transit_data_request
+ vehicle_location

vehicle_transportation_system_status

This data flow is used to communicate the general status of the transportation system to a traveler in a vehicle. The data flow consists of the following data items each of which are defined in their own DDE:

disaster_transportation_system_status
+ evacuation_transportation_system_status

vehicle_travel_services_data

This data flow is used within the Provide Driver and Traveler Services function to provide broadcast, interactive, and traveler alert information to travelers in a vehicle. It consists of the following data items each of which is defined in its own DDE:

vehicle_travel_services_provider_data
+ vehicle_broadcast_traffic_data
+ vehicle_broadcast_transit_data
+ vehicle_broadcast_incident_information
+ vehicle_broadcast_weather_data
+ vehicle_broadcast_event_information
+ vehicle_broadcast_parking_data
+ vehicle_broadcast_border_data
+ vehicle_broadcast_multimodal_data
+ vehicle_broadcast_price_data
+ vehicle_interactive_traffic_data
+ vehicle_interactive_transit_data
+ vehicle_interactive_incident_information
+ vehicle_interactive_weather_data
+ vehicle_interactive_event_information
+ vehicle_interactive_parking_data
+ vehicle_interactive_border_data
+ vehicle_interactive_multimodal_data
+ vehicle_interactive_price_data
+ field_broadcast_traffic_data
+ field_broadcast_transit_data
+ field_broadcast_incident_information
+ field_broadcast_weather_data
+ field_broadcast_event_information
+ field_broadcast_parking_data
+ field_broadcast_border_data
+ field_broadcast_multimodal_data
+ field_broadcast_price_data
+ vehicle_border_alert
+ vehicle_event_alert
+ vehicle_incident_alert
+ vehicle_multimodal_alert
+ vehicle_parking_alert
+ vehicle_traffic_alert
+ vehicle_transit_alert
+ vehicle_weather_alert

vehicle_travel_services_data_request

This data flow is used within the Provide Driver and Traveler Services function and contains a request for data on other travel services to be provided to a traveler in a vehicle. This request will also be used to sort and filter the data. The data flow consists

of the following data items each of which is defined in its own DDE:

vehicle_location
+ travel_services_provider_data_request

vehicle_travel_services_provider_data
This data flow is used within the Provide Driver and Traveler Services function to provide information on other travel services that are currently available to the traveler. It consists of the following data items each of which is defined in its own DDE:

vehicle_location
+ travel_services_general_information
+ travel_services_specific_information
+ travel_services_transaction_information

vehicle_travel_services_provider_requests
This data flow is used within the Provide Driver and Traveler Services function to transfer requests for other services (yellow pages) information from the traveler interface facility in a vehicle to the yellow pages data collection facility. It consists of the following data items each of which is defined in its own DDE:

vehicle_transaction_request
+ vehicle_payment_information_for_services
+ vehicle_travel_services_data_request

vehicle_travel_services_request
This data flow is used within the Provide Driver and Traveler Services function and contains a request for information by a traveler in a vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_emergency_information_request
+ vehicle_travel_services_provider_requests
+ vehicle_information_request
+ vehicle_alert_subscriptions

vehicle_traveler_information
This data flow is used within the Provide Driver and Traveler Services function and contains the general traveler information to be displayed to a traveler in a vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

parking_to_vehicle_local_parking_data
+ vehicle_evacuation_traveler_information
+ vehicle_transportation_system_status
+ vehicle_wide_area_alert_information
+ vehicle_emergency_traveler_information
+ vehicle_broadcast_traffic_data
+ vehicle_broadcast_transit_data
+ vehicle_broadcast_incident_information
+ vehicle_broadcast_weather_data
+ vehicle_broadcast_event_information
+ vehicle_broadcast_parking_data
+ vehicle_broadcast_multimodal_data
+ vehicle_broadcast_price_data
+ vehicle_broadcast_border_data
+ field_to_vehicle_evacuation_traveler_information
+ field_to_vehicle_transportation_system_status
+ field_to_vehicle_wide_area_alert_information
+ field_to_vehicle_emergency_traveler_information
+ field_to_vehicle_broadcast_traffic_data
+ field_to_vehicle_broadcast_transit_data
+ field_to_vehicle_broadcast_incident_information
+ field_to_vehicle_broadcast_weather_data
+ field_to_vehicle_broadcast_event_information
+ field_to_vehicle_broadcast_parking_data
+ field_to_vehicle_broadcast_multimodal_data
+ field_to_vehicle_broadcast_price_data
+ field_to_vehicle_broadcast_border_data

vehicle_trip_confirmation
This data flow is used within the Provide Driver and Traveler Services function to confirm the trip details provided as the result of a traveler's previous trip request input from a vehicle. It contains the following data items each of which is defined in its own DDE:

paratransit_service_confirmation
+ traveler_identity
+ traveler_rideshare_confirmation

vehicle_trip_confirmation_information
This flow within the Provide Driver and Traveler Services function provides trip information and payment confirmations to the

Provide Driver Personal Services function. It consists of the following items each of which is defined in its own DDE:

vehicle_payment_confirmation
+ vehicle_trip_information

vehicle_trip_information

This data flow is used within the Provide Driver and Traveler Services function and contains information about a proposed trip that the driver has requested earlier from the vehicle. It consists of the following data items each of which is defined in its own DDE:

current_conditions
+ paratransit_personal_schedule
+ rideshare_response
+ parking_lot_availability
+ route
+ traveler_identity
+ traveler_total_trip_cost

vehicle_trip_planning_requests

This data flow is used within the Provide Driver and Traveler Services function and contains data that the traveler has provided in a vehicle so that a trip can be planned or general travel information or traveler information alerts can be provided. It consists of the following data items each of which is defined in its own DDE, all of which may not be present in any one data flow:

advisory_display_type
+ advisory_data_scope
+ traveler_identity
+ vehicle_trip_request
+ vehicle_trip_confirmation
+ vehicle_payment_information
+ vehicle_payment_information_for_services
+ vehicle_information_request
+ vehicle_transaction_request
+ vehicle_alert_subscriptions
+ vehicle_profile
+ vehicle_travel_services_data_request
+ vehicle_emergency_information_request

vehicle_trip_planning_responses

This data flow is used within the Provide Driver and Traveler Services function and contains the responses to various requests for information, traveler information alert subscriptions, and trip planning services previously input by a traveler from a personal device. The data will only cover those services needed to fulfill the traveler's trip or information request. If the previous input from the traveler was a trip confirmation, the data will include either the credit identity or stored credit value originally supplied by the traveler's traveler card / payment instrument. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ vehicle_trip_information
+ vehicle_payment_confirmation
+ vehicle_transaction_confirmation
+ vehicle_interactive_traffic_data
+ vehicle_interactive_transit_data
+ vehicle_interactive_incident_information
+ vehicle_interactive_weather_data
+ vehicle_interactive_event_information
+ vehicle_interactive_parking_data
+ vehicle_interactive_multimodal_data
+ vehicle_interactive_price_data
+ vehicle_travel_services_provider_data
+ vehicle_border_alert
+ vehicle_event_alert
+ vehicle_incident_alert
+ vehicle_multimodal_alert
+ vehicle_parking_alert
+ vehicle_traffic_alert
+ vehicle_transit_alert
+ vehicle_weather_alert

vehicle_trip_request

This data flow is used within the Provide Driver and Traveler Services function and contains data about a traveler's trip request which has been input from a vehicle. It consists of the following data items each of which is defined in its own DDE:

trip_request
+ vehicle_location
+ rideshare_request
+ parking_request

vehicle_type
This data flow is used within the Manage Traffic function and contains an identifier for the type of vehicle for which pollution violations have been detected.

vehicle_type_for_charges
This data flow is used within the Provide Electronic Payment Services function and contains the vehicle type as determined from processing of the vehicle's characteristics for the purpose of paying for parking lot charges.

vehicle_type_for_tolls
This data flow is used within the Provide Electronic Payment Services function and contains the vehicle type and identity as determined from processing of the vehicle's characteristics for the purpose of charging for tolls. It consists of the following data items each of which is defined in its own DDE:

cv_tag_data
+ cv_vehicle_characteristics
+ vehicle_identity
+ vehicle_type

vehicle_utilization_information
This data flow is used within the Manage Maintenance and Construction function and contains information on maintenance and construction vehicle utilization to assist in predicting vehicle repair or replacement needs.

vehicle_weather_alert
This data flow contains traveler alerts that report regionally relevant current and forecasted road weather conditions and may include road temperatures, icy/flooded road conditions, and other information that may impact the traveler in a vehicle. Alerts are provided to a traveler's in-vehicle device based on traveler-supplied subscriptions including the traveler's location, search radius, drive route, or timeframe, as well as configurable alert thresholds (e.g., severity of the alert). It consists of the following data item which is defined in its own DDE:

weather_alert

vehicle_weather_alert_subscriptions
This data flow contains a traveler's subscription for current and forecasted road weather conditions, and may include other parameters such as the traveler's location, search radius, drive route, or timeframe. It may also contain configurable alert thresholds (e.g., severity of the alert).

vehicle_weather_data_request
This data flow contains a request for weather information from a traveler's in-vehicle device. It consists of the following items each of which is defined in its own DDE:

weather_data_request
+ vehicle_location

vehicle_wide_area_alert_information
This data flow contains wide area alert information pertaining to a major emergency such as a natural or man-made disaster, civil emergency, severe weather, or child abduction to be disseminated to travelers in a vehicle. This data flow consists of the following data item which is defined in its own DDE:

wide_area_alert_notification_for_travelers

verified_emergency
This data flow is used within the Manage Emergency Services function. It contains information about an emergency that has been identified and verified from the inputs received within the function. The data flow consists of some or all or the following data items which are defined in their own DDEs:

identified_emergency_details
+ vehicle_status_details
+ emergency_input_for_disaster

video_camera_control_strategy
This data flow contains predefined camera management strategies that provide default settings for the surveillance cameras based upon specific operational scenarios. It could contain presets for specific camera parameters like pan, tilt, and zoom.

video_control_data
This data flow contains control parameters for closed circuit television (cctv) systems and may specify camera pan, tilt, and zoom, plus other picture controls.

video_control_from_m_and_c
This data flow contains control parameters for closed circuit television (cctv) systems that have been installed in work zones or maintenance areas. These parameters may cover things such as camera pan, tilt, and zoom, plus other picture controls.

video_device_equip_status_for_m_and_c
This data flow provides the operational status (state of the device, configuration, and fault data) of CCTV equipment for the Manage

Maintenance and Construction function. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

video_device_status

This data flow provides the operational status (state of the device, configuration, and fault data) of CCTV equipment for the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

station_id
+ device_identity
+ roadside_device_status

video_device_status_for_m_and_c

This data flow provides the operational status (state of the device, configuration, and fault data) of a video device used in a work zone. It consists of the following data items each of which is defined in its own DDE:

roadside_device_status
+ device_identity
+ station_id

video_device_status_for_traffic_operator

This data flow provides the operational status (state of the device, configuration, and fault data) of video image equipment such as closed circuit televisions (CCTV) at the roadside. The CCTVs may be within or outside the local jurisdiction. If the latter, the status is provided by a traffic management center outside the local jurisdiction whose CCTVs are remotely controlled by the local center. Permission for remote control of the CCTV is assumed to have been granted. It consists of the following data items each of which is defined in its own DDE:

video_device_status
+ video_device_status_from_other_center

video_device_status_from_other_center

This data flow provides control commands for local video image equipment such as closed circuit televisions (CCTV) at the roadside from a traffic management center outside the local jurisdiction, assuming permission for remote control has been granted. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

video_device_status_to_other_center

This data flow provides the operational status (state of the device, configuration, and fault data) of local video image equipment such as closed circuit televisions (CCTV) at the roadside. The status is provided to a traffic management center outside the local jurisdiction that is remotely controlling the local CCTV. Permission for remote control of the CCTV is assumed to have been granted. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}

video_image_control_and_status_from_other_center

This data flow provides control commands and device status for local closed circuit television (CCTV) systems from a traffic management center outside the local jurisdiction, assuming permission for remote control has been granted. It consists of the following data items each of which is defined in its own DDE:

video_image_control_from_other_center
+ video_device_status_from_other_center

video_image_control_and_status_to_other_center

This data flow provides device status and local operator initiated control commands for closed circuit television (CCTV) systems outside the local jurisdiction, assuming permission for remote control has been granted. These parameters may control camera pan, tilt, and zoom, plus other picture controls. It consists of the following data items each of which is defined in its own DDE:

video_image_control_to_other_center
+ video_device_status_to_other_center

video_image_control_from_other_center

This data flow provides control commands for local closed circuit television (CCTV) systems from a traffic management center outside the local jurisdiction, assuming permission for remote control has been granted. These parameters may control camera pan, tilt, and zoom, plus other picture controls.

video_image_control_to_other_center
This data flow provides local operator initiated control commands for closed circuit television (CCTV) systems outside the local jurisdiction, assuming permission for remote control has been granted. These parameters may control camera pan, tilt, and zoom, plus other picture controls.

violation_type
This data flow is used within the Manage Emergency Services function and defines a violation type using a character code.

vision_data
This data flow is used within the Provide Vehicle Monitoring and Control function and contains data for an enhanced version of the picture obtained from other sensor(s) in the vehicle. This picture will show the driver's field of view, and will be enhanced to increase clarity under conditions such as poor visibility, darkness, etc.

vmt_account_reports_to_travelers
This data flow is used within the Provide Open Road Tolling function and passed to other processes for output to travelers. It contains reports of Vehicle Miles Traveled (VMT) road use charging activity.

vmt_account_setup_info_from_travelers
This data flow is used within the Provide Open Road Tolling function and input from travelers via other processes. It contains account setup information (associate an account with a vehicle owner and vehicle DMV registration) for Vehicle Miles Traveled (VMT) road use charges.

vmt_charge
This data flow is used within the Provide Open Road Tolling function and contains the result of road use charge calculations and is passed to another process to arrange for payment.

vmt_coordination_data_from_other_admin_sys
This data flow is used within the Provide Open Road Tolling function and is received by another process which receives input from the Other Payment Administration terminator to share road use charging information between separately managed payment administration agencies. This data flow includes Vehicle Miles Traveled (VMT) road use charging policies, specific vehicle travel history in another jurisdiction so that the other agency can charge the user, and funds to be transferred based on travel by a specific vehicle in another jurisdiction that was collected by the other agency.

vmt_coordination_data_to_other_admin_sys
This data flow is used within the Provide Open Road Tolling function and is sent to another process to be output to the Other Payment Administration terminator to share road use charging information between separately managed payment administration agencies. This data flow includes Vehicle Miles Traveled (VMT) road use charging policies, specific vehicle travel history in another jurisdiction so that the other agency can charge the user, and funds to be transferred based on travel by a specific vehicle in another jurisdiction that was collected by the other agency.

vmt_cost_data
This data flow is used within the Provide Open Road Tolling function and contains real-time information about link and/or trip costs to be passed to another process for use by driver support decision applications to select cost-optimal routes and times.

vmt_equipment_fault
This data flow is used within the Provide Open Road Tolling function contains equipment fault information for in-vehicle Vehicle Miles Traveled (VMT) road use charge equipment for use in enforcement of roadway charging.

vmt_equipment_status
This data flow contains equipment status information for in-vehicle Vehicle Miles Traveled (VMT) road use charge equipment.

vmt_payment_collected
This data flow is used within the Provide Open Road Tolling function and contains traveler card / payment instrument data collected on-board the vehicle by roadway processes and passed to center processes for payment of road use charges.

vmt_payment_collected_for_admin
This data flow is used within the Provide Open Road Tolling function and contains traveler card / payment instrument data collected on-board the vehicle for payment of road use charges.

vmt_payment_collected_from_field
This data flow is used within the Provide Open Road Tolling function and contains traveler card / payment instrument data from in-vehicle processes and passed by roadway processes to center processes for payment of road use charges.

vmt_payment_confirmation
This data flow is used within the Provide Open Road Tolling function and contains confirmation that the previous request for the road use charge to be deducted from the driver's traveler card/payment instrument has been completed successfully. This data is collected on-board the vehicle by roadway processes and is passed to center processes.

vmt_payment_confirmation_for_admin
This data flow is used within the Provide Open Road Tolling function and contains confirmation that the previous request for the road use charge to be deducted from the driver's traveler card/payment instrument has been completed successfully.

vmt_payment_confirmation_from_field
This data flow is used within the Provide Open Road Tolling function and contains confirmation that the previous request for the

road use charge to be deducted from the driver's traveler card/payment instrument has been completed successfully. This data from in-vehicle processes and passed by roadway processes to center processes.

vmt_payment_info_from_travelers
This data flow is used within the Provide Open Road Tolling function and input from travelers via other processes. It contains payment information for Vehicle Miles Traveled (VMT) road use charges.

vmt_payment_request
This data flow is used within the Provide Open Road Tolling function and contains a center request for payment of road use charges from a roadway process to in-vehicle processes.

vmt_payment_request_from_admin
This data flow is used within the Provide Open Road Tolling function and contains a request for payment of road use charges by in-vehicle processes.

vmt_payment_request_to_field
This data flow is used within the Provide Open Road Tolling function and contains a request for payment of road use charges from center processes to a roadway process for passing to in-vehicle processes.

vmt_payment_request_to_travelers
This data flow is used within the Provide Open Road Tolling function and passed to other processes for output to travelers. It contains requests for payment of road use charges (Vehicle Miles Traveled - VMT).

vmt_price_data
This data flow is sent from the Provide Open Road Tolling function to the Provide Driver and Traveler Services function and contains the Vehicle Miles Traveled (VMT) road use charge rate policies for distribution to travelers.

vmt_price_data_for_vehicles
This data flow is used within the Provide Open Road Tolling function and contains current charging policies for roadways and other facilities that a vehicle might use. It is used for road use charging calculations.

vmt_vehicle_image
This data flow is used within the Provide Open Road Tolling function and contains the image of a vehicle suitable for Optical Character Recognition (OCR) of the license plate identification.

vmt_vehicle_image_for_enforcement
This data flow is used within the Provide Open Road Tolling function and is sent from roadside processes to center processes for use in enforcement of roadway charging. It contains the image of a vehicle suitable for Optical Character Recognition (OCR) of the license plate identification.

vmt_vehicle_payment_data_clear
This data flow is used within the Provide Open Road Tolling function and contains a center request to clear previous road use charges from a roadway process to in-vehicle processes.

vmt_vehicle_payment_data_clear_from_admin
This data flow is used within the Provide Open Road Tolling function and contains a request to clear previous road use charges by in-vehicle processes.

vmt_vehicle_payment_data_clear_to_field
This data flow is used within the Provide Open Road Tolling function and contains a request to clear previous road use charges from center processes to a roadway process for passing to in-vehicle processes.

W

walkway_information
This data flow contains details contains details for walkway information (available walkways, walkways under construction, etc.) available to pedestrians.

wayside_status
This data flow represents the real-time status of the wayside equipment at an HRI.

weather_advisories
This data flow provides an indication of weather situations that cause significant inconveniences but do not meet warning criteria and, if caution is not exercised, could lead to life-threatening situations. Advisories are issued for significant events that are occurring, are imminent, or have a very high probability of occurrence.

weather_alert
This data flow contains traveler alerts that report regionally relevant current and forecasted road weather conditions and may include road temperatures, icy/flooded road conditions, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions including the traveler's location, search radius, drive route, or timeframe, as well as configurable alert thresholds (e.g., severity of the alert).

weather_and_env_data_archive_catalog

This data flow is used to provide the description of the data contained in the collection of weather data and quality checked environmental sensor data from the Weather Service terminator that has been made available for the Manage Archive Function. The catalog may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g., time range of entries, number of entries; or sample data products.

weather_archive_catalog_request

This data flow from the Manage Archived Data function to the Weather Service contains the request for a catalog of the data held by the terminator. The request for a catalog may include either or both the description of the types of data the archive is interested in or a time frame over which the requested information may be available.

weather_archive_data_request

This data flow from the Manage Archived Data function to the Weather Service contains the request for the data held by the terminator. The request for data may include either or both the description of the data required or a timeframe over which the requested information may be available.

weather_data

This data flow is sent by the Weather Service Provider and contains weather information that may be of interest to archive data users systems.

weather_data_attributes

This data flow is used to provide meta data included with weather data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

weather_data_for_alerts

This data flow contains traveler alerts that report regionally relevant current and forecasted road weather conditions and may include road temperatures, icy/flooded road conditions, and other information that may impact the traveler. Alerts are provided based on traveler-supplied subscriptions.

weather_data_for_archive

This data flow is sent by the Weather Service terminator and contains weather information that may be of interest to archive data users systems along with the meta data that is necessary to describe the imported data to the Manage Archived Data function. This data flow contains the following items each of which is defined in its own DDE:

weather_data
+ weather_data_attributes

weather_data_for_broadcast

This data flow is used within the Provide Driver and Traveler Services function and contains data about current weather conditions for use in broadcast traveler information applications. It consists of the following data items each of which is defined in its own DDE:

weather_forecasts
+ weather_observations
+ roadway_environment_conditions
+ environment_sensor_data
+ road_conditions
+ road_weather_conditions

+ env_probe_data_from_vehicles

weather_data_for_centers

This data flow is used within the Provide Driver and Traveler Services function and contains data about current weather conditions for transmission to other operational centers. It consists of the following data items each of which is defined in its own DDE:

weather_forecasts
+ weather_observations
+ roadway_environment_conditions
+ environment_sensor_data
+ road_conditions
+ road_weather_conditions
+ env_probe_data_from_vehicles

weather_data_for_interactive

This data flow is used within the Provide Driver and Traveler Services function and contains data about current weather conditions, processed for traveler consumption, for use in interactive traveler information applications. It consists of the following data items each of which is defined in its own DDE:

weather_forecasts
+ weather_observations
+ roadway_environment_conditions
+ environment_sensor_data
+ road_conditions
+ road_weather_conditions
+ env_probe_data_from_vehicles

weather_data_for_route_guidance

This data flow is used within the Provide Driver and Traveler Services function and contains data about current weather conditions for use in route guidance applications. It consists of the following data items each of which is defined in its own DDE:

weather_forecasts
+ weather_observations
+ roadway_environment_conditions
+ environment_sensor_data
+ road_conditions
+ road_weather_conditions
+ env_probe_data_from_vehicles

weather_data_for_trip_planning

This data flow is used within the Provide Driver and Traveler Services function and contains data about current weather conditions for use in Trip Planning applications. It consists of the following data items each of which is defined in its own DDE:

weather_forecasts
+ weather_observations
+ roadway_environment_conditions
+ environment_sensor_data
+ road_conditions
+ road_weather_conditions
+ env_probe_data_from_vehicles

weather_data_request

This data flow is used within the Provide Driver and Traveler Services function and contains a request for updated weather and road conditions information to support various traveler information and services applications.

weather_data_request_for_alerts

This data flow is used to request specific current and forecasted road weather condition information based on traveler alert subscriptions.

weather_data_request_from_interactive

This data flow is used within the Provide Driver and Traveler Services function and contains a request for updated weather and road conditions information to support the interactive traveler information application. It consists of the following item which is defined in its own DDE:

weather_data_request

weather_data_request_from_route_guidance

This data flow is used within the Provide Driver and Traveler Services function and contains a request for updated weather and road conditions information to support the route guidance application. It consists of the following item which is defined in its own DDE:

weather_data_request

weather_data_request_from_trip_planning

This data flow is used within the Provide Driver and Traveler Services function and contains a request for updated weather and road

conditions information to support the trip planning application. It consists of the following item which is defined in its own DDE:

weather_data_request

weather_forecast_details
This data flow contains forecasts of specific atmospheric weather variables including temperature (ambient and dew point), pressure, wind parameters (direction, speed, and character), humidity, precipitation, visibility, and light conditions. The data flow also contains weather variable attributes such as ensemble statistics, initialization time of forecast, source of boundary conditions, means of forecast, the application location of the forecast and the applicable time of the forecast.

weather_forecasts
This data flow contains forecasts of weather variables, including temperature (surface and pavement), pressure, wind speed, wind direction, humidity, precipitation, roadway visibility, and pavement conditions as well as forecast data attributes. This data flow consists of the following data items each of which is defined in its own DDE:

miso_scale_weather_forecasts
+ meso_scale_weather_forecasts
+ synoptic_scale_weather_forecasts
+ climatic_scale_weather_forecasts
+ weather_scale_forecast_data_attributes
+ micro_scale_surface_trans_weather_forecasts
+ miso_scale_surface_trans_weather_forecasts
+ meso_scale_surface_trans_weather_forecasts
+ synoptic_scale_surface_trans_weather_forecasts
+ climatic_scale_surface_trans_weather_forecasts
+ surface_trans_weather_scale_forecast_data_attributes

weather_observation_attributes
This data flow contains meta data about weather observations. This meta data includes time of observation, observation facility characteristics, and identification of filtering or assimilation performed on the observations.

weather_observations
This data flow contains forecasts of weather variables, including temperature, pressure, wind speed, wind direction, humidity, precipitation, visibility, and light conditions as well as forecast data attributes. This data flow also contains advisories, watches, or warnings for weather related events. This data flow consists of the following data items each of which is defined in its own DDE:

miso_scale_weather_forecasts
+ meso_scale_weather_forecasts
+ synoptic_scale_weather_forecasts
+ climatic_scale_weather_forecasts
+ weather_scale_forecast_data_attributes
+ micro_scale_surface_trans_weather_forecasts
+ miso_scale_surface_trans_weather_forecasts
+ meso_scale_surface_trans_weather_forecasts
+ synoptic_scale_surface_trans_weather_forecasts
+ climatic_scale_surface_trans_weather_forecasts
+ surface_trans_weather_scale_forecast_data_attributes

weather_scale_forecast_data_attributes
This data flow contains meta data about the meteorological scale forecast including persistence of an observation or previous forecast, numerical model used, model output statistics (MOS), and any description of how forecast types are combined.

weather_service_emergency_information
This data flow contains the relevant weather information to assist the emergency dispatch function to better respond to an incident.

weather_service_information
This data flow consists of weather information from the Weather Service terminator, including current weather observations and various scales of weather forecasts. It contains the following items that will be organized by geographic area to allow for local variations and each of which is defined in its own DDE:

fws-current_weather_observations
+ fws-weather_forecasts

weather_service_information_request
This data flow requests weather information from the Provide Driver and Traveler Services and Manage Traffic functions. The data requested will provide weather conditions for the Provide Traffic Operations Personnel Traffic Data Interface.

weather_warnings
This data flow provides a localized warning of severe or hazardous weather conditions that may impact (or constitute a hazard for) the majority of people in a given areas. Warnings are given for summer weather related events such as hail, hurricanes, thunderstorms, tornados, storm surges, excess heat, high winds, heavy rain etc. Warnings are given for winter weather related events such as winter storms (blizzards, heavy snow, or ice), freezing rain, flash freezing, extreme cold temperatures or wind-chill, frost, etc.

weather_watches

This data flow provides an indication that a region is may experience severe weather conditions in the near future. A weather watch is intended to alert the public to the possibility that severe weather conditions (mainly severe thunderstorms) may develop later such that a warning may be issued. Watches are most frequently issued to advise of the potential for the development of severe thunderstorms during the summer season, but they may also be issued in advance of severe winter storms.

wide_area_alert_notification_for_maint

This data flow is sent to the Manage Maintenance and Construction function to provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction and to be on the look out for certain conditions. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{alert_type
+ alert_severity
+ geographical_area
+ alert_duration}

wide_area_alert_notification_for_tolls

This data flow provides alert notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be sent to toll operators to be on the look out for certain conditions. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{alert_type
+ alert_severity
+ geographical_area
+ alert_duration}

wide_area_alert_notification_for_traffic

This data flow is sent to the Manage Traffic function to provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be sent to the traffic operations personnel to be on the look out for certain conditions. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{alert_type
+ alert_severity
+ geographical_area
+ alert_duration}

wide_area_alert_notification_for_transit

This data flow is sent to the Manage Transit function to provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be sent to transit system operators to be on the look out for certain conditions. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{alert_type
+ alert_severity
+ geographical_area
+ alert_duration}

wide_area_alert_notification_for_travelers

This data flow provides alert notification of a major emergency such as a natural or man-made disaster, civil emergency, severe weather, or child abduction to be displayed to travelers. It consists of the following data items each of which is defined in its own DDE:

list_size{alert_type
+ alert_severity
+ geographical_area
+ alert_duration}

wide_area_alert_notification_status

This data flow is used within the Manage Transit function and contains the status of a wide area alert that has been detected in the transit operations area. This incident may be a potential security problem, but it is up to the transit system operator to decide what responsive action can be initiated. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ wide_area_alert_notification_for_transit

wide_area_alert_notification_within_transit

This data flow is sent between processes in the Manage Transit function to provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction. It consists of the following data item which is defined in its own DDE:

wide_area_alert_notification_for_transit

wide_area_alerts_for_response

This data flow provides the response to an alert notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be displayed to travelers. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{alert_type
+ alert_severity
+ geographical_area
+ alert_duration}

wide_area_pollution_data

This data flow is used within the Manage Traffic function as a means of transferring current pollution data from the Manage Emissions facility to the Provide Traffic Surveillance facility. It contains data about the current levels of pollution obtained from the store of pollution data in the area covered by the Emissions Management Center and consists of the following data item which is defined in its own DDE:

list_size{pollution_sensor_data}

winter_dispatch_orders_to_mcv

This data is used within the Manage Maintenance and Construction function and contains dispatch information from the vehicle fleet manager to the maintenance and construction vehicle for winter conditions. The data flow consists of the following data items each of which is defined in its own DDE:

m_and_c_center_identity
+ vehicle_id_for_mcv
+ time
+ date
+ mcv_winter_dispatch_instructions

winter_maint_action_req_from_traffic

This data flow is sent by the Manage Traffic function to the Manage Maintenance and Construction function and contains a request for action. This includes a request for treatment of icy roads, and other winter roadway treatment.

winter_treatment_plan

This data flow consists of the selected winter maintenance treatment plan, including the type of activity to be performed, schedule, etc. and is provided to assist the maintenance and construction activities scheduling function.

work_zone_activity_data

This data flow is used within the Manage Maintenance and Construction function to provide work activity schedules, device control, information collection and dissemination parameters, and other control information to construction processes in work zones. The data flow consists of the following items each of which is defined in its own DDE:

work_zone_activity_plan
+ map_data_for_m_and_c_wz_status_display
+ work_zone_device_operator_control
+ center_control_of_on_board_work_zone_devices
+ work_zone_data_collection_parameters
+ work_zone_info_distribution_parameters
+ speed_sensor_control_from_m_and_c_personnel

work_zone_activity_plan

This data flow is used within the Manage Maintenance and Construction function and contains the work activity schedule for use by construction activities in work zones. This flow includes the schedule, work activity to be performed, the site location, and any special instructions.

work_zone_activity_status

This DFD flow represents the data flows from Control Work Zone Activity to Manage Work Zone Data and includes intrusion alert information collected from on-board a M&C vehicle in a work zone. It consists of the following data items each of which is defined in its own DDE:

work_zone_device_status
+ on_board_work_zone_device_status
+ on_board_work_zone_device_status_for_operator
+ roadside_crew_warning_given
+ work_zone_warning_given_on_board

work_zone_data_collection_parameters

This data flow contains parameters to define how the work zone data is collected and formatted, aggregated, or filtered for distribution.

work_zone_data_for_archive

This data flow contains data that describes the current status of work zone activities, including work status, resource status, device status, and sensor data. This status is created for later archival and it consists of the following data item which is defined in its own DDE:

work_zone_data_for_status

work_zone_data_for_archive_attributes

This data flow is used to provide meta data included with maintenance and construction work zone data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data, such as status of operational equipment. This meta data may also include flags to identify the presence of privacy sensitive information. Other meta data attributes such as class names, data type, and data concept identifiers may be present when a standard data dictionary or message set template is used as in IEEE P1489 and P1488. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling
+ owner_entities
+ authorization_to_use
+ date_created
+ date_published
+ date_archived
+ methods_applied
+ personal_identification_status
+ collection_equipment
+ equipment_status
+ data_concept_identifier
+ perishability_date
+ data_revision
+ data_version
+ record_size
+ standard_data_attribute
+ standard_message_attribute

work_zone_data_for_display

This data flow contains a status of work zone data and activity that can be formatted for display to the maintenance and construction center personnel. This data flow consists of data formatted from the following data flow which is defined by its own DDE:

work_zone_data_for_status

work_zone_data_for_distribution

This data flow contains a summary of maintenance and construction work zone activities affecting the road network including the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. The data flows also contains work zone resource status. This data flow consists of data from the following data item which is defined in its own DDE:

work_zone_data_for_status

work_zone_data_for_status

This data flow contains an overall status of work zone activity created by combining inputs from work zone devices being monitored or controlled, work zone sensors (such as speed monitoring or intrusion detection sensors) and maintenance and construction field personnel. The data flow also contains work zone plans and work zone information status collected from work zones under the control of other maintenance and construction organizations. This data flow represents the formatting, filtering, and aggregation of these data inputs to create the overall status.

work_zone_device_control_data

This DFD flow represents the data flows from Manage Work Zones to Provide Device Control and includes work zone information to be displayed and broadcast. It consists of the following items each of which is defined in its own DDE:

wz_control_data_for_roadside
+ work_zone_info_for_display
+ individual_vehicle_speed_for_display
+ individual_vehicle_speed_for_signage
+ speed_warning_for_display
+ speed_warning_for_signage
+ roadway_info_variable_speed_limit_data
+ variable_speed_limit_data_for_signage
+ dms_variable_speed_data_from_roadway
+ signage_variable_speed_data_from_roadway

work_zone_device_operator_control

This data flow contains control parameters sent from the maintenance and construction center personnel for traffic surveillance, traffic control, or driver information devices in work zones or maintenance areas. The devices controlled include closed circuit TV, dynamic message signs, highway advisory radio, gates/barriers, intrusion detection devices, and intrusion alert devices. These parameters may cover things such as device configuration or device reset. For the cctv the control flow also includes pan, tilt, and zoom plus other picture controls.

work_zone_device_status

This data flow contains the operational status (state of the device, configuration, and fault data) of all roadside devices monitored or controlled by the maintenance and construction management function in a work zone or maintenance area. These devices include dynamic message signs, highway advisory radios, closed circuit television cameras, intrusion detection devices, and intrusion alert devices. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ equip_identity
+ equip_device_status}

work_zone_device_status_for_display

This data flow contains the operational status (state of the device, configuration, and fault data) of all roadside devices monitored or controlled by the maintenance and construction management function in a work zone or maintenance area. These devices include dynamic message signs, highway advisory radios, closed circuit television cameras, intrusion detection devices, and intrusion alert devices. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ equip_identity
+ equip_device_status}

work_zone_equip_status_for_m_and_c_from_center

This data flow contains the operational status (state of the device, configuration, and fault data) of all roadside devices monitored or controlled by the maintenance and construction management function in a work zone or maintenance area. These devices include dynamic message signs, highway advisory radios, closed circuit television cameras, intrusion detection devices, and intrusion alert devices. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ equip_identity
+ equip_device_status}

work_zone_equipment_status

This data flow contains the operational status (state of the device, configuration, and fault data) of all roadside devices monitored or controlled by the maintenance and construction management function in a work zone or maintenance area. These devices include dynamic message signs, highway advisory radios, closed circuit television cameras, intrusion detection devices, and intrusion alert devices. It consists of the following data items each of which is defined in its own DDE:

list_size{station_id
+ equip_identity
+ equip_device_status}

work_zone_identifier

This data flow contains an identifier that is assigned to a particular work zone for status and reporting purposes.

work_zone_images

This data flow contains a high resolution digitized image of a portion of a work zone taken from a particular point on the road or freeway network.

work_zone_images_for_display

This data flow contains digitized images of activities in work zones. This data flow consists of data from the following data items which are defined in their own DDE:

work_zone_images
+ fomcm-work_zone_images
+ work_zone_intrusion_video_image

work_zone_images_for_distribution

This data flow contains digitized images of activities in work zones. This data flow consists of data from the following data items which are defined in their own DDE:

work_zone_images
+ fomcm-work_zone_images
+ work_zone_intrusion_video_image

work_zone_images_for_isp

This data flow contains analog or digitized video images of a work zone that are being released for external viewing, in this case to an information service provider. This data flow consists of data from the following data items which are defined in their own DDE:

work_zone_images

work_zone_images_for_traffic

This data flow contains analog or digitized video images of a work zone that are being released for external viewing, in this case to a traffic management agency. This data flow consists of data from the following data items which are defined in their own DDE:

work_zone_images

+ fomcm-work_zone_images

work_zone_incident_data

This DFD flow represents the data flows from Manage Work Zones to Manage Incidents and includes images and data from work zones. It consists of the following items each of which is defined in its own DDE:

video_control_from_m_and_c
+ work_zone_images_for_traffic
+ work_zone_info_for_traffic

work_zone_info_distribution_parameters

This data flow contains parameters to define how the work zone information is formatted, aggregated, or filtered for distribution to various organizations outside of the manage maintenance and construction function.

work_zone_info_for_display

This data flow contains work zone information for display on roadway information devices. This information includes the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits.

work_zone_info_for_emergency

This data flow contains a summary of maintenance and construction work zone activities that have been tailored for providing to an emergency management organization. This information includes the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. The data flows also contains work zone resource status. This data flow consists of data from the following data item which is defined in its own DDE:

work_zone_data_for_status

work_zone_info_for_isp

This data flow contains a summary of maintenance and construction work zone activities that have been tailored for providing to a traveler information organization. This information includes the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. This data flow consists of data from the following data item which is defined in its own DDE:

work_zone_data_for_status

work_zone_info_for_operator_display

This data flow contains a summary of the work zone information being provided to other organizations. The data flow represents the information that will be formatted for display to the maintenance and construction center personnel.

work_zone_info_for_traffic

This data flow contains a summary of maintenance and construction work zone activities that have been tailored for providing to a traffic management organization. This information includes the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. The data flows also contains work zone resource status. This data flow consists of data from the following data item which is defined in its own DDE:

work_zone_data_for_status

work_zone_info_for_transit

This data flow contains a summary of maintenance and construction work zone activities that have been tailored for providing to a transit management organization. This information includes the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. This data flow consists of data from the following data item which is defined in its own DDE:

work_zone_data_for_status

work_zone_intrusion_alert

This data flow contains a time stamped indication that a work zone intrusion alert has been generated. The data flow could also identify the form in which the alert was given (e.g. audible warning, visual warning, or in-vehicle warning).

work_zone_intrusion_alert_on_board

This data flow contains a time stamped output of an on-board intrusion alert device indicating that an intrusion alert has been given to field personnel.

work_zone_intrusion_alert_on_board_for_in_vehicle_signing

This data flow contains data for use in producing an in-vehicle signage display that provides as alert that the vehicle is approaching too fast, or is too close to a maintenance and construction vehicle.

work_zone_intrusion_control

This DFD flow represents the data flows from Control Work Zone Activity to Manage Work Zone Intrusion Warning and includes intrusion alert and detection device control. It consists of the following data items each of which is defined in its own DDE:

intrusion_detection_device_control

+ intrusion_alert_device_control
+ on_board_intrusion_detection_device_control
+ intrusion_alert_device_control_on_board

work_zone_intrusion_data

This DFD flow represents the data flows from Manage Work Zone Intrusion Warning to Manage Work Zone Data and includes intrusion and alert information. It consists of the following data items each of which is defined in its own DDE:

work_zone_intrusion_detected
+ work_zone_intrusion_alert
+ work_zone_intrusion_detected_on_board
+ work_zone_intrusion_alert_on_board

work_zone_intrusion_detected

This data flow contains an indication from an intrusion detection sensor that an intrusion into the perimeter of the work zone has occurred. It consists of the following data items each of which is defined in its own DDE:

device_identity
+ intrusion_detection_device_output

work_zone_intrusion_detected_on_board

This data flow contains the time stamped output of an on-board intrusion detection device indicating that an intrusion has been detected. It consists of the following data items each of which is defined in its own DDE:

device_identity
+work_zone_intrusion_detection_on_board

work_zone_intrusion_detection

This data flow contains a time stamped indication that a work zone intrusion has been detected by an intrusion detection sensor.

work_zone_intrusion_detection_for_on_board

This data flow contains the output of an intrusion detection device indicating that an intrusion of the work zone perimeter has been detected. This intrusion detection from a roadside device is sent to a process on-board a maintenance and construction vehicle. It consists of the following data items each of which is defined in its own DDE:

device_identity
+ intrusion_detection_device_output

work_zone_intrusion_detection_on_board

This data flow contains the time stamped output of an on-board intrusion detection device indicating that an intrusion has been detected.

work_zone_intrusion_detection_on_board_output

This data flow contains the output of an intrusion detection device indicating that an intrusion of the work zone perimeter has been detected. It consists of the following data items each of which is defined in its own DDE:

device_identity
+ intrusion_detection_device_output

work_zone_intrusion_detection_output

This data flow contains the output of an intrusion detection device indicating that an intrusion of the work zone perimeter has been detected. It consists of the following data items each of which is defined in its own DDE:

device_identity
+ intrusion_detection_device_output

work_zone_intrusion_status

This DFD flow represents the data flows from Manage Work Zone Intrusion Warnings to Control Work Zone Activity and includes intrusion and alert information and device status. It consists of the following data items which is defined in its own DDE:

intrusion_detection_device_status
+ intrusion_alert_device_status
+ work_zone_intrusion_detection_output
+ on_board_intrusion_detection_device_status
+ work_zone_intrusion_detection_on_board_output
+ intrusion_alert_device_status_on_board

work_zone_intrusion_video_image

This data flow contains time stamped high resolution digitized video images of a work zone. These images are used to identify that a work zone intrusion has taken place.

work_zone_intrusion_warning_notification

This data flow contains a time stamped indication that a work zone intrusion warning has been generated on-board a maintenance and construction vehicle. It consists of the following data items each of which is defined in its own DDE:

work_zone_intrusion_alert_on_board
+ work_zone_warning_given_on_board

work_zone_personnel_status
This data flow contains the status of personnel who are currently working in a work zone. The data flow would attach some form of personnel identifier to the status indication.

work_zone_resource_status
This data flow contains the status of work zone resources, including personnel, vehicles, and equipment. It consists of the following data items each of which is defined in its own DDE:

work_zone_identifier
+ work_zone_personnel_status
+ work_zone_vehicle_status
+ work_zone_equipment_status

work_zone_status_for_display
This data flow is used within the Maintenance and Construction function and contains the current status of work zone activities available on-board the maintenance and construction vehicle. This includes status of barrier systems, intrusion detection or alert devices. This status is created for output to the M&C field personnel inside the maintenance and construction vehicle.

work_zone_status_from_mcv
This data flow contains inputs on work zone status provided by the maintenance and construction field personnel on-board a maintenance and construction vehicle. These inputs include field personnel status, vehicle status, and work activity status. The work zone status inputs include current location (and future locations for moving work zones), impact to the roadway, required lane shifts, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits.

work_zone_status_inputs
This data flow contains inputs on work zone status provided by the maintenance and construction field personnel on-board a maintenance and construction vehicle. These inputs include field personnel status, vehicle status, and work activity status.

work_zone_surveillance_data
This DFD flow represents the data flows from Manage Work Zones to Provide Traffic Surveillance and includes information from a work zone, including video images and speed data. It consists of the following items each of which is defined in its own DDE:

speed_data_for_traffic_status
+ speed_data_for_traffic_display
+ t_other_rw_speed_warning_to_dms
+ t_other_rw_speed_warning_to_signage
+ t_other_rw_individual_vehicle_speed_to_dms
+ t_other_rw_individual_vehicle_speed_to_signage
+ t_other_rw_work_zone_intrusion_detection
+ t_other_rw_variable_speed_limit_data
+ t_other_rw_variable_speed_limit_data_to_signage

work_zone_surveillance_data_for_isp
This DFD flow represents the data flows from Manage Work Zones to Provide Traffic Surveillance and includes information from a work zone, including video images. It consists of the following items each of which is defined in its own DDE:

work_zone_info_for_isp
+ work_zone_images_for_isp

work_zone_to_roadway_m_and_c
This DFD flow represents the data flows from Manage Work Zones to Manage Roadway M&C Activities and includes work zone status information. It consists of the following items each of which is defined in its own DDE:

work_zone_device_status_for_display
+ work_zone_data_for_status
+ work_zone_images_for_display
+ request_m_and_c_wz_status_display_update
+ work_zone_data_for_display
+ work_zone_info_for_operator_display
+ speed_data_for_m_and_c_display
+ intrusion_detection_equip_status_for_m_and_c
+ intrusion_alert_equip_status_for_m_and_c
+ variable_speed_limit_equip_status_for_m_and_c
+ speed_sensor_equip_status_for_m_and_c
+ work_zone_equip_status_for_m_and_c_from_center

work_zone_vehicle_status
This data flow contains the status of maintenance and construction vehicles at a specific work zone. The data flow would also contain a vehicle identifier.

work_zone_warning_given_on_board

This data flow contains a time stamped indication that an on-board device monitoring crew movements has generated an intrusion warning alert. The data flow would contain to whom was sent or how it was sent).

wrong_way_vehicle

This data flow within the Manage Traffic function contains data about wrong-way vehicles detected in reversible lanes for use by the traffic operations personnel in identifying and verifying incidents. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ vehicle_license
+ incident_video_image
+ traffic_video_image
+ vehicle_detection_data

wrong_way_vehicle_detection

This data flow is sent by the Manage Traffic function to the Manage Emergency Services function and contains data about wrong-way vehicles detected in reversible lanes. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ vehicle_license
+ incident_video_image
+ traffic_video_image
+ vehicle_detection_data

wz_control_data_for_roadside

This DFD flow represents the data flows from Control Work Zone Activity to Provide Roadside Control Facilities. It consists of the following items each of which is defined in its own DDE:

barrier_system_control_from_mcv
+ barrier_system_control_from_m_and_c
+ dms_data_from_m_and_c
+ dms_data_from_mcv
+ har_data_from_m_and_c

X

Y

Z