KAJIAN PELAN INDUK SISTEM PENGANGKUTAN PINTAR

Development of ITS System Architecture for Malaysia

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Volume III – Data Dictionary

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TABLE OF CONTENTS

Logical Architecture Framework Volume III - Data Dictionary

1 Data Dictionary……1
1.1 Introduction……1
1.2 Data Dictionary Summary……..1

1 DATA DICTIONARY

1.1 Introduction

Data Flows represent the information that is transferred between processes or between a process and a terminator in the Logical Architecture. In Volume I, Data Flows are shown as arrows on the Data Flow Diagrams. Volume II summarized the Process Specifications, which are the lowest level of decomposition of Data Flow Diagrams.

Every Data Flow included in the Logical Architecture is defined in a data dictionary entry (DDE). Each DDE contains a textual description of the data flw and identifies any lower level data elements that make up the data flow. The lower level data elements are also defined in their own DDEs. Section 1.2 provides a complete Data Dictionary for the Malaysian ITS Architecture.

1.2 Data Dictionary Summary

actuator_commands
This data flow is used within the Provide Driver and Traveller 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

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 commuter from on-board a public transport vehicle or at the roadside, i.e. a public transport 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
+ traveller_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 store is used within the Provide Electronic Payment Services function to hold a list of drivers and travellers 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 traveller identity, the associated credit identity and the value of a public transport fare that is being paid for in advance. The traveller identity is used to associate this charge with the traveller 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
+ traveller_identity.

advanced_fare_billing_needed

This data flow is used within the Provide Electronic Payment Services function to indicate that advanced payment for a public transport 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 public transport 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 store is used within the Provide Electronic Payment Services function to hold a list of those drivers, travellers and commuters who have paid their public transport fares in advance, plus details of the fare and journey to which it applies. It 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
+ traveller_identity}.

advanced_fare_transactions

This data flow is used within the Provide Electronic Payment Services function and contains data about advanced public transport fare payment transactions as they take place for recording in the log of public transport 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
+ traveller_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 public transport 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

advanced_fares_confirm

This data flow is used within the Provide Electronic Payment Services function to show that payment for advanced public transport 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
+ traveller_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 traveller (as a commuter) who is paying a public transport 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 public transport fare by a commuter. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ stored_credit
+ transit_fare
+ traveller_identity.

advanced_other_fares_request

This data flow is used within the Provide Electronic Payment Services function to request that a public transport 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

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 traveller (as a commuter) who is paying a public transport 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_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 travellers 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

advanced_tolls

This data flow is used within the Provide Electronic Payment Services function and ontains 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 traveller (as commuter) at the roadside, i.e. a public transport 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 traveller (as a commuter) fare payment interface at the roadside, i.e. a public transport 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 traveller (as a commuter) in a public transport 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 traveller (as a commuter) fare payment interface in a public transport 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 public transport 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

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

confirmation_flag
+ parking_lot_cost
+ stored_credit
+ traveller_identity.

advanced_traveller_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 traveller 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_traveller_fares_confirm

This data flow is used within the Provide Electronic Payment Services function to show whether advanced fare payment by a traveller planning a trip has been refused or cleared. The traveller will be using facilities in the Provide Driver and Traveller 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

advanced_traveller_fares_request

This data flow is used within the Provide Electronic Payment Services function to request that a public transport fare be paid for in advance by a traveller who is planning a trip using facilities in the Provide Driver and Traveller 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
+ traveller_identity.

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

confirmation_flag
+ stored_credit
+ toll_cost
+ traveller_identity.

advanced_traveller_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 traveller 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

This data flow is used within the Provide Driver and Traveller Services function to provide traffic and travel advisory data to drivers and travellers in vehicles. It consists of the following data items each of which is defined in its own DDE:

traffic_data_for_advisories
+ planned_events_for_advisories
+ prediction_data_for_advisories
+ transit_services_for_advisories
+ transit_running_data_for_advisories.

advisory_data_request

This data flow is used within the Provide Driver and Traveller Services function to request that advisory data be output to a driver or a traveller in a vehicle. The scope and public transport route number data will be provided by the driver or commuter, whilst the vehicle location will be provided automatically. The data flow consists of the following data items each of which is defined in its own DDE:

advisory_data_scope
+ vehicle_location_for_advisories
+ transit_route_number

advisory_data_request_for_archive

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide data to the data archive about requests for advisory data be output to a driver or a traveller in a vehicle. The data flow consists of the following data item which is defined in its own DDE:

advisory_data_request.

advisory_data_scope

This data flow is used within the Provide Driver and Traveller Services function to show the scope of the advisory data requested by the driver or commuter 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, public transport schedules, public transport routes, current public transport 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 Traveller Services function and contains the following definitions of the various types of driver and traveller displays that are available in the vehicle:

0 - no display,
1 - travel and traffic advisory display, updated with vehicle location changes,
2 - enable roadside information display,
3 - disable roadside information display,
4 - enable enhanced vision display,
5 - disable enhanced vision display,
6 - select front enhanced vision display,
7 - select rear enhanced vision display,
8 - transit information
9 - traffic information
10 - other (yellow pages) services information.

advisory_requests_for_archive

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide data to the data archive about the requests for advisory data, yellow pages services, or yellow pages reservations to be output to a driver, traveller, or commuter in a vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

advisory_data_request_for_archive
+ yellow_pages_advisory_requests_for_archive.

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.

ahs_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 highway system (ahs) anes, 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:

ahs_check_identity

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

location_identity

ahs_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 automatic highway system (ahs) 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.

ahs_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 automatic highway system (ahs) lanes. The data flow consists of the following data items each of which is defined in its own DDE:

ahs_control_data_update
+ confirmation_flag.

ahs_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 highway system (ahs) lanes. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag.

ahs_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 highway system (ahs) lanes from roadside locations. It consists of the following data items each of which is defined in its own DDE:

ahs_failed_checks_count
+ ahs_successful_checks_count.

ahs_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 highway system (ahs) 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{ahs_check_identity
+ ahs_failed_checks_count
+ ahs_successful_checks_count}.

ahs_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 automatic highway system (ahs) 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:

ahs_demand_accel_decel_profile
+ ahs_demand_headway.

ahs_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 highway system (ahs) check-in facilities. It contains data defining parameters to be used by vehicles participating in platoon following and running in ahs 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:

ahs_demand_accel_decel_profile
+ ahs_demand_headway.

ahs_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 automatic highway system (ahs) 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:

ahs_demand_accel_decel_profile
+ ahs_demand_headway.

ahs_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 automatic highway system (ahs) 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:

ahs_check_parameters
+ ahs_control_data.

ahs_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 highway system (ahs) lane in which the vehicle is travelling, together with the lane identity. There are five types of ahs lane which are as follows:

1 - entry lane,
2 - running lane,
3 - exit lane,
4 - exit lane ahead,
5 - transfer lane,
6 - transfer lane ahead.

Items 1 and 2 will be accompanied by the lane identity, whilst items 4 and 6 will be accompanied by the identity of the ahs lane to which the exit lane leads, plus the direction (left or right). Item 5 is used for a particular type of exit lane and will be accompanied by the identity of the ahs lane being joined. Item 3 is used for a lane taking vehicles to a lane on which ahs operation is not supported.

ahs_demand_accel_decel_profile

This data flow is used within the Manage Traffic and Provide Vehicle Monitoring and Control functions. It contains the acceleration and deceleration characteristics profile to be used by all vehicles over their entire speed range whilst travelling along automatic highway system (ahs) lanes in automatic control mode. This data is provided by the Manage Demand facility in the Manage Traffic function and is used to override the set of data loaded into the vehicle during its manufacture. The data flow consists of the following data item which is defined in its own DDE:

vehicle_accel_decel_profile.

ahs_demand_headway

This data flow contains the headway to be used by a vehicle over its entire speed range whilst in automatic control mode and travelling on automatic highway system (ahs) 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.

ahs_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 highway system (ahs) check-in procedure at a particular point over the time period of

ahs_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 whilst in automatic control mode and travelling along automated highway system (ahs) 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.

ahs_lane_use_data

This data flow is used within the Provide Vehicle Monitoring and Control function and contains records of the use of all ahs lanes. This is to enable a picture to be complied of the ahs 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
+ ahs_vehicle_count}.

ahs_operational_data

This data flow contains details of the number of vehicles that have been checked into the automatic highway system (ahs), plus details about the use of ahs 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{ahs_checking_records
+ ahs_lane_use_data
+ date
+ time}.

ahs_operational_data_attributes

This data flow is used to provide meta data included with ahs 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.

ahs_route

This data flow is sent by the Provide Driver and Traveller Services function to the Provide Vehicle Control and Monitoring function. It is a special form of route for vehicles only using automatic highway system (ahs) 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 Traveller Services function was set to ahs lanes only. The data flow consists of the following items each of which is defined in its own DDE:

route_segment_number{route_segment}.

ahs_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 automatic highway system (ahs) lanes, and will be used by the vehicle on its ahs controlled route. The data flow consists of the following data items each of which is defined in its own DDE:

list_size

ahs_route_request

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

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_ahs_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type.

ahs_status

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

ahs_successful_checks_count

This data flow contains a count of the number of vehicles that successfully passed through the automatic highway system (ahs) check-in procedure at a particular point.

ahs_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 highway system (ahs) 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 ahs 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:

ahs_checking_records

ahs_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 highway system (ahs) 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:

ahs_check_parameters
+ ahs_control_data.

ahs_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 highway system (ahs) lanes.

ahs_vehicle_count

This data flow contains a count of the number of vehicles that have used an automatic highway system (ahs) lane based route segment during the previous time period.

ahs_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 highway system (ahs) lane operation. The data consists of the following items each of which is defined in its own DDE:

ahs_data_input
+ ahs_vehicle_condition.

air_services_costs

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

air_services_destination

This data flow is used within the Provide Driver and Traveller Services function. It contains the destination of the airline service(s) that are the closest fit with a traveller'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 traveller 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 Traveller Services function. It contains the time at which a flight arrives the destination point for airline services in a traveller's trip plan. This destination may not be the actual final destination of the flight operated by the airline, because the traveller may be leaving at some intermediate point along its route. The service will be a close fit with a traveller'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 Traveller Services function. It contains details of the airline service(s) that have been found to be suitable for use by a traveller 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_intermediate_arrival_time

This data flow is used within the Provide Driver and Traveller Services function. It contains the time at which a flight arrives at an intermediate point on the part of a traveller's route to be provided by an airline. Up to four (4) of these intermediate points are allowed as part of a particular airline flight. These four points are those at which the traveller 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 traveller 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 traveller's proposed trip. The data flow consists of the following data item which is defined in its own DDE:

air_services_intermediate_depart_time

This data flow is used within the Provide Driver and Traveller Services function. It contains the time at which an airline service departs from an intermediate point on the part of a traveller's route to be provided by an airline. Up to four (4) of these intermediate points are allowed as part of a particular airline flight. These four points are those at which the traveller 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 traveller 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 traveller's proposed trip. The data flow consists of the following data item which is defined in its own DDE:

air_services_intermediate_point

This data flow is used within the Provide Driver and Traveller Services function. It contains the location of an intermediate point on a route operated by an airline. Up to four (4) of these intermediate points are allowed as part of a particular service and they will all be the locations of commercial airfields. They will be airfields at which the traveller 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 traveller'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 Traveller Services function. It contains the origin of the airline service(s) that are the closest fit with a traveller'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 traveller 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 Traveller Services function. It contains the time at which a flight leaves the origin point for airline services in a traveller's trip plan. This origin may not be the actual origin of the flight operated by the airline, because the traveller may be joining at some intermediate point along its route. The service will be a close fit with a traveller'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 Traveller Services function. It contains details of an airline route that will suit a traveller's proposed trip and is associated with a cost and a schedule. The route may have up to four (4) intermediate points at which the services calls, and at which the traveller 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 traveller. The data flow consists of the following data items each of which is defined in its own DDE:

air_services_origin
+ 4{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 traveller as part of a proposed trip. It consists of the following data item which is defined in its own DDE:

3{air_services_route_details}.

air_services_schedule_details

This data flow is used within the Provide Driver and Traveller Services function. It contains details of the departure and arrival times at places along an airline route that will suit a traveller's proposed trip and is associated with a cost and a route. The route may have up to four of these places at which the services calls, and at which the traveller may have to change from one flight to another There may be other places at which the flight calls, but the traveller 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
+ 4{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 traveller as part of a proposed trip. It consists of the following data item which is defined in its own DDE:

6{air_services_schedule_details}.

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.

approach_warning

This data flow provides immediate data for HRI users as they approach an HRI (e.g. local beacon broadcast). 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 railside 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

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 public transport 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_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_environmental_sensor_data

This data flow is used within the Manage Traffic function to collect environmental sensor data and environment sensor fault data from the roadside to send to the archive data function. It consists of the following data items each of which is defined in its own DDE:

environment_sensor_data
+ environment_sensor_fault_data

archive_manage_emergency_vehicle_data

This data flow is used to transfer existing emergency vehicle data to a point in the 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 also contains values of pollution levels obtained from the roadside. It consists of the following data items each items each of which is defined in its own DDE:

pollution_state_static_acceptance_criteria
+ pollution_state_roadside_collection.

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_area_acceptance_data
+ pollution_area_acceptance_times
+ pollution_area_tolerance_data
+ pollution_area_tolerance_times
+ pollution_roadside_acceptance_data
+ pollution_roadside_acceptance_times
+ pollution_roadside_tolerance_data
+ pollution_roadside_tolerance_times
+ pollution_vehicle_acceptance_data
+ pollution_vehicle_acceptance_conditions.

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, as well as collected at the roadside and 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:

pollution_state_area_collection
+ list_size
+ list_size{pollution_state_roadside_collection + pollution_state_vehicle_collection}.

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. his 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 ITS Architecture where it can be

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.

archived_maintenance_data

This data flow contains archived data concerning O&M activity. This information could include archived maintenance resource requests and status. This data is used to schedule maintenance resources appropriately. This data flow consists of the following items each of which is defined in its own DDE:

maintenance_data_for_archive
+ asset_management_storage_data.

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.

asset_management_data

This data flow within the Manage O&M Data function contains data concerning the infrastructure assets that are being maintained by the ITS function. Such assets may include signal, surveillance, or information dissemination devices that are along the

asset_management_plan
This data flow is generated by the Manage O&M Assets function and contains updated information about the conditions, status, and plans concerning the roadway assets maintained by this Manage Traffic function. Such information about the infrastructure could include data on the location of devices, date of last maintenance actions, scheduled date for next action.

asset_management_storage_data
This data flow contains data about the infrastructure assets within a region. This information is maintained within the database of infrastructure data and archived periodically or upon request. This data item is made up of the following item which is defined in its own DDE:

infrastructure_data.

ats_advisory
This data flow contains data relative to the status of an HRI and is intended to be forwarded to the railside 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 railside 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 railside 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 railside 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.

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.

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

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

route
+ route_cost.

autonomous_traveller_guidance_data_request
This data flow is used within the Provide Driver and Traveller Services function and requests autonomous guidance for a traveller 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 Traveller 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 Traveller 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 Traveller Services function and requests on-line dynamic or autonomous guidance for the vehicle in which the driver is travelling.

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_ahs_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type.

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

bad_charge_payment_list

This store 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

bad_fare_payment_list

This store 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) public transport fare payment transactions.

list_size

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 public transport tags be provided for use in fare transaction processing on-board a public transport vehicle. The data low 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 commuter 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 be set to zero (0) 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 public transport 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 public transport fare collection processes. This data will contain a digitized video image of the traveller trying to violate the fare collection process, plus information about the public transport 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

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 public transport 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 public transport fare collection processes. This data will contain a digitized video image of the traveller trying to violate the fare collection process, plus information about the public transport 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 public transport 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 public transport fare collection processes at the roadside, i.e. a public transport stop, to the Manage Emergency Services function. This data flow will contain a digitized video image of the commuter 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 (public transport 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 public transport fare payments on-board a public transport vehicle. It contains details of bad commuter tags that have been detected as a result of fare processing as commuters have been using the public transport network. The data is provided by processes in the Provide Electronic Payment Services function on request from the public transport 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_tag_store_check_request

This data flow is used within the Manage Transit function. It contains details of commuter tag that must be checked against the list of bad tags. The data flow consists of the following item which is defined in its own DDE:

credit_identity.

bad_transit_tag_store_data

This data flow contains a response to a request for a match of a commuter's tag data with the list of bad tags. The data flow consists of the following data item which is defined in its own DDE:

credit_identity.

bad_transit_tag_store_updates

This data flow is used within the Manage Transit function. It contains details of bad commuter tags that have been detected as a result of fare processing as commuters have been using the public transport network. The data is provided by processes in the Provide Electronic Payment Services function on request from the public transport vehicle and is used to update a data store. It 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 public transport 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 public transport fare collection processes on-board the vehicle to the Manage Emergency Services function. This data flow will contain a digitized video image of the commuter 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 public transport 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

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.

billing_for_charges_needed

This data flow indicates that billing for a parking lot charge is required. An advanced parking lot charge payment request ca 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_tag_data
+ parking_lot_cost
+ vehicle_identity.

billing_for_fares_needed

This data flow indicates that billing for a public transport 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
+ transit_user_category
+ traveller_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_tag_data
+ vehicle_identity.

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

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_data
This data flow is used within the Provide Driver and Traveller Services function to provide traffic and travel advisory data via a wide area broadcast message to drivers and travellers in vehicles. It consists of the following data items each of which is defined in its own DDE:

traffic_data_for_broadcast

+ planned_events_for_broadcast
+ prediction_data_for_broadcast
+ transit_services_for_broadcast
+ transit_running_data_for_broadcast.

broadcast_parameters_data
This data store is used within the Provide Driver and Traveller Services function to hold parameters used to filter traffic and public transport data for the wide area broadcast of traffic and public transport data. These parameters can be viewed ISP Operator and updated if

broadcast_parameters_data_output
This data flow is used within the Provide Driver and Traveller Services function and contains the contents of the store of parameters used to filter traffic and public transport information for wide area broadcasting. The data is being sent to a process for output to the ISP operator. The data flow consists of the following data item which is defined in its own DDE:

broadcast_parameters_data.

broadcast_parameters_data_update
This data flow is used within the Provide Driver and Traveller Services function and contains the contents of the store of parameters used to filter traffic and public transport information for wide area broadcasting. The data is being sent to a process for loading into its store, following input by the ISP operator. The data flow consists of the following data item which is defined in its own DDE:

c_and_m_archive_catalog
This data flow is used to provide the description of the data contained in the collection of C&M data from the Maintenance Management Subsystem 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

c_and_m_archive_catalog_request
This data flow from the Manage Archived Data function to the Maintenance Management Subsystem 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.

c_and_m_archive_data_request
This data flow from the Manage Archived Data function to the Maintenance Management Subsystem 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.

c_and_m_data
This data flow is sent by the Maintenance Management Subsystem and contains information that may be of interest to archive data users systems such as work zone information or maintenance schedules.

c_and_m_data_attributes

This data flow is used to provide meta data included with construction and maintenance 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.

c_and_m_data_for_archive

This data flow is sent by the Maintenance Management Subsystem 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:

c_and_m_data
+ c_and_m_data_attributes.

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 travellers 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

cargo_data

This data flow conains information associated with the cargo inside a container. This would include measurements of cargo conditions (e.g. temperature, vibration, or humidity). The status could also be a general 'red/green' type of reading. The data flow consists of the following data item which is defined in its own DDE:

cargo_measures.

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_information

This data flow conains information about the cargo status and location. The data flow consists of the following data items which are defined in their own DDEs:

cargo_location
+cargo_measures.

cargo_location

This data flow is contains the location of the cargo as measured by some Location Source colocated with the cargo. The data flow consists of the following data item which is defined in its own DDE:

location_identity.

cargo_measures
This data flow conains information about the cargo status. This would include measurements of cargo conditions (e.g. temperature, vibration, or humidity). The status could also be a general 'red/green' type of reading.

cargo_monitoring_status
This data flow contains information about the status of the cargo monitoring system. This could include a fault indication along with fault data or merely a 'red/green'type indication.

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 (40 characters). Where the vehicle is operated by the driver, it will be the same as the driver's

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 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_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 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 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
+ route.

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_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
+ route
+ 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_payment_request

This data flow requests payment for the enrollment of a particular commercial vehicle cargo, weight and type on a particular route by the commercial fleet manager. The data flow consists of the following items each of which is defined in its own DDE:

cf_manager_credit_identity
+ cv_account_number
+ cv_route_number
+ 1{cv_taxes_and_duties}14.

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_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

+ route.

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_intermodal_dispatch_assigment

This data flow contains dispatch instructions for the driver relating to the pickup and delivery of an intermodal container.

cf_intermodal_route_instructions

This data flow contains the driver route and loading instructions related to a particular intermodal assignment provided 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_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 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 Provide Electronic Payments Services function to the Manage Commercial Vehicles function and contains the credit identity or the amount of stored credit currently stored on the payment instrument being used by a commercial vehicle manager. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit.

cf_manager_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 manager, and is only sent when the cost is to be deducted from the credit stored on the 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.

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 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 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 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_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 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_request

This data flow is used within the Manage Commercial Vehicles function by the commercial vehicle 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_ahs_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type
+ route_type.

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 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_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 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
+ vehicle_location_for_cv.

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 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

cf_reports
This flow consists of reports of roadside fleet activity and safety compliance, generated by commercial vehicle administration for commercial fleet managers. It consists of the following data flows, each of which is defined in its own DDE.

cf_roadside_activity_report
+ cf_periodic_activity_report.

cf_request_activity_report
This data flow is used within the Manage Commercial Vehicles function and contains a request from the commercial vehicle manager for one of two types of activity report to be provided. This may be either a specific one time report of clearance safety activity at roadside facilities, or a request that periodic summary reports to be sent on a regular basis. The reports will only relate to the carrier, driver, vehicle combination specified in the request, although it will be possible for all the vehicles and drivers related to a specific carrier to be requested. The data flow contains the following data items each of which is defined in its own DDE:

cv_credentials_details
+ cv_roadside_activity_report_frequency
+ date
+ list_size

cf_request_on_board_vehicle_data
This data flow is used within the Manage Commercial Vehicles function. It contains a request from the commercial vehicle manager 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 items each of which is defined in its own DDE:

cv_on_board_data_required
+ cv_general_input_message.

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 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 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
+ vehicle_identity
+ vehicle_location_for_cv.

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 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

cf_route

This data flow is sent from the Provide Driver and Traveller 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
+ route
+ route_type.

cf_route_request

This data flow is sent from the Manage Commercial Vehicles function to the Provide Driver and Traveller 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_ahs_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_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_ahs_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 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 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 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_audit_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 manager.

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 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
+ vehicle_identity
+ vehicle_location_for_cv.

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

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_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

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.

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 traveller making pre-trip planning, as an advanced charges payment from a driver at a toll plaza or parking lot, or from a commuter in the public transport network, i.e. on a public transport vehicle or at a public transport 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
+ traveller_identity.

confirm_advanced_fares_payment

This data flow is used within the Provide Electronic Payment Services function to confirm that advanced payment for a public transport fare has been made. This may have originated as a request from a traveller 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

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 traveller making pre-trip planning, as an advanced toll payment from a driver at a toll plaza or parking lot, or from a commuter in the public transport network, i.e. on a public transport vehicle or at a public transport 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
+ traveller_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 public transport fare from the roadside, i.e. a public transport 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 public transport fare (interactive operation) or of a group of fares (batch mode) from on-board the vehicle has been completed. If the transaction processing was in batch mode, the commuter's tag identity will be set to zero (0), otherwise it will be set to the identity provided in the transaction request. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ transit_user_vehicle_tag_identity
+ transit_vehicle_identity.

confirmation_flag
This data flow is used within various ITS functions. It is a flag which is set to one (1) to indicate the success of a request or transaction, and zero (0) to indicate failure.

connection_change_request
Internal Flow.

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

constraint_on_ahs_lanes
This data flow is used within the Provide Driver and Traveller Services function and contains a flag which if set to one (1) means that where possible use route segments that are automatic highway system (ahs) lanes. The default is set to false, i.e. do not use

constraint_on_eta_change
This data flow is used within the Provide Driver and Traveller 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 Traveller Services function and contains a flag which if set to one (1) means, where possible, use interstate freeways except for when access is required to particular places, e.g. origin, destination, way points along a route. The default is set to true.

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 od 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 traveller 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 Traveller Services function and contains the maximum number of mode changes that a traveller 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 Traveller Services function and contains a flag which if set to one (1) means avoid all urban roads except for when they are needed for access. The default is set to true.

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 highway system (ahs) 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 traveller 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_ahs_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type.

container_consolidation_location

This data flow provides the location of the Container Consolidation Station. It consists of the following data items each of which is defined in its own DDE:

location_identity.

container_consolidation_location_request

Internal Flow.

container_delivery_confirmation

This data flow contains confirmation that an intermodal shipment has been delivered to an intermodal facility.

container_delivery_request

This data flow contains a request for permission to deliver a container to an intermodal facility. The request is sent to the intermodal facility in advance of the actual container delivery in order to schedule to time of the delivery.

container_identification_for_terminal

This data flow contains a unique identification of a container that allows tracking of the container throughout the system. The identification can be used to associate the container with a manifest.

container_information

This data flow contains information from systems on-board the container, including refrigeration, shock measurement, controlled atmosphere sensing, and electronic seal data (both an electronic manifest and the status of the electronic seal). The data could include actual measurements of the on-board systems (e.g. temperature, vibration, or humidity) or the status could also be a general 'red/green' type of reading.about the container status and location. The data flow also contains the location of the container based upon an on-board location sensing device. The data flow consists of the following data items which are defined in their own DDEs:

container_location

container_information_request

This data flow contains a request for information regarding the release status of a container which is being delivered to an intermodal terminal. The request is provided to the Intermodal Terminal Operator interface.

container_location

This data flow is contains the location of the container as measured by some Location Source colocated with the container. The data flow consists of the following data item which is defined in its own DDE:

location_identity.

container_location_for_terminal

This data flow provides the location of a container within the intermodal terminal. This information allows tracking of a container in a large intermodal facility. It consists of the following data item which is defined in its own DDE:

location_identity.

container_location_information

This data flow provides the location, identification, and status of a container within the intermodal terminal. It consists of the following data item which is defined in its own DDE:

container_location_for_terminal
+ container_identification_for_terminal
+ container_status_for_terminal.

container_location_information_for_driver

This data flow contains the location of a container within the intermodal terminal and is provided to a commercial vehicle driver as they enter the intermodal terminal. It consists of the following data item which is defined in its own DDE:

location_identity.

container_measures
This data flow conains information about the container status. This would include measurements of container conditions (e.g. temperature, vibration, or humidity)as well as the status of any electronic seal on the container. The status could also be a general 'red/green' type of reading.

container_monitoring_status
This data flow contains information about the status of the container monitoring system. This could include a fault indication along with fault data or merely a 'red/green'type indication.

container_pickup_and_delivery_status
This data flow contains the pickup or delivery status of a shipment obtained from a Freight Consolidation Station.

container_pickup_confirmation
This data flow contains a confirmation that a container has been picked up and will be delivered to an intermodal terminal.

container_pickup_request
This data flow contains a request sent by the intermodal terminal to a carrier for pickup of a shipment that has arrived at the

container_status
This data flow contains information from systems on-board the container, including refrigeration, shock measurement, controlled atmosphere sensing, and electronic seal data (both an electronic manifest and the status of the electronic seal). The data could include actual measurements of the on-board systems or the status could also be a general 'red/green' type of reading. The status of the monitoring systems themselves could be provided. The data flow consists of the following data items which are defined in their own DDEs:

container_information
+container_monitoring_status
+electronic_seal_data.

container_status_for_terminal
This data flow provides the status of a container inside an intermodal terminal.It consists of the following data item which is defined in its own DDE:

container_status.

container_status_request
Internal Flow.

container_transfer_location
This data flow provides information to the driver regarding the location within an intermodal facility for an intermodal transfer. It consists of the following data item which is defined in its own DDE:

location_identity.

container_transfer_location_information
This data flow provides information to the driver regarding the location within an intermodal facility for an intermodal transfer. It consists of the following data item which is defined in its own DDE:

container_transfer_location.

container_transfer_location_request
This data flow provides a request for location within an intermodal terminal where a container should be taken for transfer, or where the driver should go for a container pickup.

control_data_for_highways
This data flow is used within the Manage Traffic function and contains indicator, 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_for_highways
+ indicator_highway_requested_state
+ dms_data_for_highways.

control_data_for_roads
This data flow contains the control data 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:

har_data_for_roads
+ indicator_control_data_for_roads
+ dms_data_for_roads.

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:

existing_sensor_static_data
+ local_sensor_data
+ other_TMC_cv_incidents
+ other_TMC_emergency_data
+ other_TMC_strategy_data
+ parking_lot_input_data
+ prediction_data
+ ramp_data
+ strategy_data
+ traffic_data_for_signage
+ vehicle_smart_probe_data_indication
+ status_data_for_roads
+ status_data_for_highways
+ other_control_data_for_highways
+ other_control_data_for_roads.

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 (0), automatic control, platoon following (4), failed to take control (5), sensor failure (6), manual input detected (7), Built In Self Test (BIST) failure (8), driver and/or vehicle unsafe (9), inputs disabled (10), or input unknown (11). The second one (automatic control) may itself be split up into various forms, e.g. automatic control may be speed control (1), headway control (2), lane control (3), 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_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 up to four (4) adaptive and fixed time plan numbers which re to be implemented.. The data flow consists of the following data items each of which isdefined in its own DDE:

highway_sign_plan_number
+ 1{indicator_road_adaptive_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

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_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

cost

This data flow is used by several functions within ITS and contains the cost of a service. This data flow displays the cost of a display map or navigable map database update. It can also display the cost of a public transport fare, a paratransit 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 traveller or driver for payment of current or advanced tolls, fares, parking lot charges, or for yellow pages services.

crew_close_hri

This data flow is used to control vehicle traffic at passive HRI's. It represents a manually initiated, or non-train initiated, request to activate the devices

that will close a grade crossing to vehicular traffic.

crossing_adaptive_data
This data flow contains data provided by the Plan System Deployment function 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_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_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_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 Traveller 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
+ fws-current_weather
+ fws-predicted_weather.

current_connection_status
Internal Flow.

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_data
+ traffic_flow_state
+ traffic_management_storage_data + traffic_video_image_data
+ vehicle_smart_probe_stored_data + wide_area_pollution_data
+ sensor_output_data
+ stored_incident_data.

current_data_for_broadcast

This data flow contains a subset of the current data available from the Traffic Management function which is appropriate for transmission to users via the broadcast mode. The data flow consists of the following data items each of which is defined in its own DDE:

current_incident_data
+ current_roadway_network_data
+ parking_lot_storage_data
+ link_state_data_for_broadcast
+ roadway_environment_conditions

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_fare_transactions

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

credit_identity
+ date
+ time
+ transit_fare
+ traveller_identity.

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 Traveller 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
+ list_size{link_identity
+ link_journey_time
+ link_delay
+ link_status}.

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_data_for_vehicle_signage

This data flow is used within the Manage Traffic function. It contains data about current incidents for output as part of in-vehicle signage data. The data flow consists of the following data item which is defined in its own DDE:

current_incident_details.

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
+ disaster_traffic_advisory_data.

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 if 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
+ disaster_traffic_advisory_data.

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

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_oldest_time.

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_link_speed_limit

This data flow contains the speed limit for a given segment of roadway to be used by the Establish Violation Parameters function.

current_nitrous_oxide_pollution

This data flow is used within the Manage Traffic function and contains the average level of nitrous oxide 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_other_routes_use

This data flow is used within the Provide Driver and Traveller Services function and contains data about the non-vehicle portion(s) of routes that have been requested by travellers. 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_travellers}
+ route_segment_journey_time}.

current_other_routes_use_for_archive

This data flow is used within the Provide Driver and Traveller Services function and contains data for the data archive about the non-vehicle portion(s) of routes that have been requested by travellers. 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_travellers}
+ 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

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 Traveller 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
+ list_size{link_identity
+ link_journey_time
+ link_delay

current_road_network_use

This data flow is sent from the Provide Driver and Traveller Services function to the Manage Traffic function. 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 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
+ route_segment_use_prediction
+ route_segment_journey_time}.

current_road_network_use_for_archive

This data flow is used within the Provide Driver and Traveller 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 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

+ route_segment_use_prediction
+ route_segment_journey_time}.

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:

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_roadway_network_state

This data flow is sent by the Manage Traffic function to the Provide Driver and Traveller 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

current_traffic_pollution_data

This data flow is sent to the Provide Traffic Surveillance function 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 items each of which is defined in its own DDE:

pollution_state_area_collection
+ list_size

current_transit_routes_use

This data flow is used within the Provide Driver and Traveller Services and Manage Traffic functions. It contains data showing the numbers of travellers using all or part of the available public transport 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
+ list_size{transit_route_number
+ transit_route_current_use}.

current_weather

This data flow is used within the Manage Traffic function and the Provide Driver and Traveller Services functions. It contains details of the current weather conditions, e.g. temperature, pressure, wind speed, wind direction, humidity, precipitation, visibility, light conditions, 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:

cv_border_database_update
+ cv_credentials_database_update
+ cv_credentials_information_response
+ cv_safety_database_update
+ cv_safety_information_response.

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. If set to zero (0) 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 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_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_border_daily_log

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. 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.

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_credentials_details
+ cv_lock_tag_data
+ cv_trip_identity
+ cv_vehicle_characteristics.

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

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_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

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_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 is contains the status of a commercial vehicle's cargo 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_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_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_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 is its own DDE:

cv_account_number

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. (32 characters). 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:

cv_credentials_information_request

This data flow is used within the Manage Commercial Vehicles function and contains the 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_request_type
+ cv_credentials_request_identity
+ cv_roadside_facility_identity.

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_request_identity

This data flow is contains the identity number of the commercial vehicle credentials data request. This number is used as a mechanism for tracking successive data requests from the same commercial vehicle roadside checkstation facility.

cv_credentials_request_type
This data flow is used within the Manage Commercial Vehicles function and contains the type of credentials for which data is being requested. The type will relate to such things as the carrier, driver or vehicle number.

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_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_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
+ cv_border_daily_log.

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_payments

This data flow is sent from the Manage Commercial Vehicles function to the Provide Electronic Payment Services function. It contains data that will be used to transact financial payments for commercial vehicles, including the payment of tolls. The data flow consists of the following items each of which is defined in its own DDE:

financial_request.

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
+ cv_trip_identity}.

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 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_repairs_and_service_records
+ cv_fuel_purchase_data
+ cv_driver_number
+ cv_driver_credentials

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 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

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_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 (32 characters).

cv_driver_number

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

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 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, as well as at toll plazas for toll payment collection. The data flow consists of the following data items each of which is defined in its own DDE:

cv_on_board_tag_data
+ cv_lock_tag_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. It consists of the following two data items each of which is contained in its own DDE:

cf_hazmat_vehicle_information
+ cf_hazmat_route_information
+ cv_violation_data.

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_payment_request

This data flow is used to request payment for the enrollment of a particular commercial vehicle cargo, weight and type on a particular route by the commercial vehicle driver acting in the role of the commercial fleet manager. The data flow consists of the following items each of which is defined in its own DDE:

cv_account_number
+ cv_driver_credit_identity
+ cv_route_number
+ 1{cv_taxes_and_duties}14.

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 definedin its own DDE.

list_size
+ list_size{cv_roadside_daily_log}
+ 2{cv_border_daily_log}.

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 kilometress 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 a string of alphanumeric data which can be set up by the commercial vehicle driver, sent from the vehicle and output directly by the commercial vehicle manager. The data is used to convey general information and may be used instead of a voice link.

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
This data flow is used within the Manage Commercial Vehicles function. If it is set to one (1) a commercial vehicle is to be pulled in because it cannot be identified, otherwise a zero (0) setting means the pull-in decision can be taken by other processes.

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_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, etc.

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_type
+ permit_route_plan

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 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

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 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:

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_manual_pull_in
This data flow is to show that a manual pull-in is required. If set to one (1) 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 zero (0) 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 to one (1) shows that a potentially there will be the need to pull in a commercial vehicle because of a problem. It is otherwise set to zero (0).

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_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_identity_details
+ cv_credentials
+ cv_driver_credentials
+ cv_driver_license_citations
+ cv_repairs_and_service_records
+ cv_inspection_data
+ cv_inspection_activities_data
+ cv_fuel_purchase_data
+ cv_safety_systems_diagnostics_results
+ cv_vehicle_log
+ cv_log_data
+ cv_not_pulled_in.

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 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 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_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.

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_credentials
+ cv_credentials_details
+ cv_driver_credentials
+ cv_driver_license_citations
+ cv_fuel_purchase_data
+ cv_identity_details
+ cv_inspection_activities_data
+ cv_inspection_data
+ cv_log_data
+ cv_not_pulled_in
+ cv_repairs_and_service_records
+ cv_safety_systems_diagnostics_results
+ cv_vehicle_log.

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. This will be a digital version of the analog data provided to the sensors and is used by another process for

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 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

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_payments_results_data
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:

financial_response.

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_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_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_data

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

cv_roadside_facility_identity
+ cv_roadside_facility_address.

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. This data is sent to the commercial vehicle driver who is acting in the role of commercial vehicle manager, i.e. is an owner driver. The data flow consists of the following data item which is defined in its own DDE:

cv_on_board_data_required.

cv_request_permits_and_duties_update

This data flow is used within the Manage Commercial Vehicles function. It contains a request that an updated list of taxes and credential fees be obtained from the government administrators.

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
+ 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 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_facility_identity
+ cv_roadside_record
+ date.

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_credentials_information_request
+ cv_roadside_daily_log
+ cv_border_daily_log
+ cv_safety_information_request
+ cv_update_safety_problems_list.

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_on_board_screening_record.

cv_roadside_facility_address
This data item contains the address (16 digits) 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 Province and/or area(s) within a

cv_roadside_facility_location
This data flow is used within the Manage Commercial Vehicles functions and contains a the location of a commercial vehicle roadside checkstation facility at which a commercial vehicle is to be enrolled. It consists of the following data items each of which is defined in its own DDE:

cv_roadside_facility_identity
+ route_segment_identity.

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_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_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_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_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_output
This data flow is used within the Manage Commercial Vehicles function and contains an output of data currently held 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_safety_database_read
This data flow is used within the Manage Commercial Vehicles function and contains a read of the data currently 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_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_database_write

This data flow is used within the Manage Commercial Vehicles function and contains a write of data to 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. The data flow will be used in the report that is output once at the specific request of a commercial vehicle manager. 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 Traveller 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

cv_route_data

This data flow is sent from the Provide Driver and Traveller 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 Traveller 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_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 Traveller Services function to the Manage Commercial Vehicle 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
+ cv_route
+ vehicle_location_for_cv.

cv_route_request

This data flow is sent from the Manage Commercial Vehicles function to the Provide Driver and Traveller 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_ahs_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_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_clearance_data
+ 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_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_history_read
This data flow is used within the Manage Commercial Vehicles function and contains the data currently in the store which contains a list of those commercial vehicles and carriers that have been found to have safety problems. The data flow consists of the following data item which is defined in its own DDE:

cv_safety_history_data.

cv_safety_history_update
This data flow is used within the Manage Commercial Vehicles function and contains a write to the store which contains a list of those commercial vehicles and carriers that have been found to have safety problems. This data originates from the government administrators terminator. The data flow consists of the following data item which is defined in its own DDE:

cv_safety_history_data.

cv_safety_history_write
This data flow is used within the Manage Commercial Vehicles function and contains an update to the store which contains a list of those commercial vehicles and carriers that have been found to have safety problems. This data originates from the commercial vehicle roadside check facility and is a result of problems with vehicle inspections that it has carried out. The data flow consists of the following data item which is defined in its own DDE:

cv_safety_history_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
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_identity
+ cv_safety_information_request_type

cv_safety_information_request_identity
This data flow contains the identity number of the commercial vehicle safety information request. This number is used as a mechanism for tracking successive data requests from the same commercial vehicle roadside checkstation facility.

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,

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_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. For no failures the data item will be blank (all zero), with ones (1's) being used to indicate failure. (16 digits).

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_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_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_ahs_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 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_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

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 (possibly acting in the role of a commercial vehicle manager). 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 acting in the role of a commercial vehicle manager 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 Provicials 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

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_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 that is set up by the commercial vehicle manager (or the driver acting in that capacity) for use in checking the 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.

confirmation_flag
+ cv_route_number.

cv_update_safety_problems_list
This data flow is used within the Manage Commercial Vehicles function and contains details of the carrier, driver and vehicle for which safety problems have been found during an inspection 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_roadside_facility_identity
+ cv_roadside_safety_data.

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_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

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_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. This period of time has been set at one hundred (100) days. 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
+ 100{cv_fuel_purchase_data
+ cv_inspection_activities_data
+ cv_log_data
+ cv_repairs_and_service_records
+ cv_safety_systems_diagnostics_results

cv_vehicle_identification
This data flow provides identification of a commercial vehicle to an intermodal terminal for the purpose of entrance and exit control, guidance, and safety monitoring.It consists of the following data item which is defined in its own DDE:

vehicle_identity.

cv_vehicle_location
This data flow contains the current location of the commercial vehicle, measured using an on-board location device.

cv_vehicle_location_request
This data flow contains a request for the commercial vehicle to transmit its current location.

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_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.

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

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_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_from_front_vehicle
This data flow is used within the Provide Vehicle Monitoring and Control function. It contains data from the next vehicle to the front in a platoon. This data provides information about the status of the sending vehicle that 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. The data flow consists of the following data items

each of which is defined in its own DDE:

platoon_ahead_vehicle_status
+ platoon_accel_decel_profile
+ platoon_headway.

data_from_rear_vehicle

This data flow is used within the Provide Vehicle Control and Monitoring function. It contains data from the vehicle to the rear in a platoon. This data provides information about the status of the vehicle to the rear that will assist the receiving vehicle in both maintaining the current platoon formation and making changes because (for example) the vehicle to the rear is leaving the platoon. The data flow consists of the following data items each of which is defined in its own DDE:

platoon_accel_decel_profile
+ platoon_rear_vehicle_status
+ platoon_headway.

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_to_front_vehicle

This data flow is used within the Provide Vehicle Control and Monitoring function. It contains data for the next vehicle ahead in a platoon. The data provides vehicle status information to assist it in both maintaining the current formation and reacting to any changes, e.g. a vehicle leaving the platoon. The data flow consists of the following data items each of which is defined in its own DDE:

platoon_accel_decel_profile
+ platoon_rear_vehicle_status

data_to_rear_vehicle

This data flow is used within the Provide Vehicle Control and Monitoring function. It contains data for the vehicle to the rear in a platoon. This data provides information about the status of the sending vehicle that 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. The data flow consists of the following data items each of which is defined in its own DDE:

platoon_accel_decel_profile
+ platoon_ahead_vehicle_status
+ platoon_headway.

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 effectively 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.

defined_incident_response_changes
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 process responsible for reviewing possible new defined responses based on those that have been made to incidents in the past. The data flow consists of either of the following data items, each of which is defined in its own DDE:

planned_incident_response

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_data
This data store is used within the Manage Traffic function and contains data about defined incident 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.

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_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 vehicle 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, public transport fares, etc.

departure_time
This data flow is used within the Provide Driver and Traveller Services function and defines the time at which a driver or traveller'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 Traveller Services function and specifies the target time for arrival at the end of a driver or traveller'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 Traveller Services function. It defines the destination point for a trip request or a route to be used by a traveller 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.

device_control_state
This data flow contains the state of all active controls at a local HRI.

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_faults_for_maintenance
This data flow from the Provide Roadside Control Facilities contains status indicators and fault reports from the roadside equipment being manage by the O&M function. It consists of the following items each of which is defined in its own DDE:

indicator_response_data_for_highways
+ har_fault_data_for_highways
+ indicator_response_data_for_roads
+ har_fault_data_for_roads.

device_maintenance_data
This data flow provides data from the Provide Device Control function to the Manage O&M Data function. This data flow consists of the following items each of which is defined in its own DDE:

indicator_new_fault
+ maintenance_link_data.

device_setting
This data flow is used to describe the capabilities of the interface device being used by a traveller 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
This data flow represents the current status of the devices used at an HRI and includes pertinent information relative to railside equipment status. It is used to determine the overall health and status of the HRI by the Monitor HRI Status process.

direction_commands
This data flow is used to select forward motion, rearwards motion or neutral.

disaster_advisory_data
This data flow contains advisory data concerning the extent of disasters in the region with recommended actions to be taken by the traveller to be disseminated to travellers along the roadway network.

disaster_archive_data
This data flow contains a set of data concerning disaster response to be archived for off-line analysis. This data flow consists of the following data flows each of which is defined in its own DDE:

emergency_response_data_for_management
+ emergency_service_allocations
+ disaster_emergency_response_request
+ local_decision_support
+ incident_status_data
+ medical_facility_data.

disaster_data
This data store captures the data concerning the coordination and management of disaster type events in an area. This item is made up of the following data flows each of which is defined in its own DDE:

emergency_response_data_for_management
+ emergency_service_allocations
+ disaster_emergency_response_request
+ local_decision_support
+ incident_status_data
+ medical_facility_data.

disaster_data_dissemination
This data flow within Manage Traffic contains disaster advisory data to be disseminated to travellers by the Output Control Data function. This data flow is made up of the following item which is defined in its own DDE:

disaster_advisory_data.

disaster_data_freeway_dissemination
This data flow within Manage Traffic contains disaster advisory data to be disseminated to travellers by the Output Control Data for Freeways function. This data flow is made up of the following item which is defined in its own DDE:

disaster_advisory_data.

disaster_data_road_dissemination
This data flow within Manage Traffic contains disaster advisory data to be disseminated to travellers by the Output Control Data for Roads function. This data flow is made up of the following item which is defined in its own DDE:

disaster_advisory_data.

disaster_emergency_response_dispatch
This data flow is sent to the Manage Emergency Response function to notify the function of information necessary during coordinated responses to disaster type events.

disaster_emergency_response_request
This data flow is sent to the Collect Disaster Response Data function to notify the function of information necessary during coordinated responses to disaster type events. This data may include information concerning the nature and extent of the disaster or commands to be carried out by the local Manage Emergency Services function.

disaster_traffic_advisory_data
This data flow contains information concerning the extent of disaster type events and the advisory information for travellers to be disseminated by the Manage Traffic Function.

disaster_traffic_data
This data flow contains the traffic conditions of the roadway network managed by the function for the Disaster Command Authority. This item is made up of the following data flows each of which is defined in its own DDE:

current_data_for_retrieval
+ long_term_data_for_retrieval
+ predictive_model_data_for_retrieval
+ sensor_output_data
+ roadway_environment_conditions.

disaster_traffic_request
This data flow contains a request for traffic information that has been made by the Disaster Command Authority. This request may include specifics on the location within the network about which the authority is interested or a timeframe for the data.

disaster_traveller_advisory
This data flow contains advisory data concerning the extent of the disaster in the region with recommended actions to be taken by the traveller.

display_map_traveller_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 traveller'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 three types depending on the type of incident about which advice is 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_allocation
This data flow is used within the Manage Traffic function and is provided by the Plan System Deployment function. It 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:

dms_highway_allocation
+ dms_road_allocation
+ dms_hri_allocation.

dms_data_for_highways
This data flow is used within the Manage Traffic function and contains DMS data about text strings of information to be output to drivers on 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_sign_control_data_for_highways.

dms_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 traveller can be produced by indicators at 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:

indicator_sign_control_data_for_roads
+ indicator_sign_control_data_for_hri.

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:

dms_highway_allocation
This data flow is used within the Manage Traffic function and is provided by the Plan System Deployment function. It contains details of the way in which dynamic message signs (dms) are allocated to the 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_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 and is provided by the Plan System Deployment 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 travellers.

dms_pollution_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 pollution, 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 as this is the normal state.

dms_road_allocation
This data flow is used within the Manage Traffic function and is provided by the Plan System Deployment 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{indicator_identity
+ route_segment_end_point
+ route_segment_identity
+ route_segment_start_point}.

dms_status_for_highways
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 function. The data flow consists of the following data items each of which is defined in its own DDE:

dms_updates_for_highways.

dms_status_for_roads
This data flow contains the Dynamic Message Sign status for sign control 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:

list_size
+ list_size{indicator_identity
+ dms_advisory_text}.

dms_updates
This data flow is used within the Manage Traffic function and contains data about 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 called dynamic message signs (dms). The indicator type specified for the data output must be a dms otherwise no output can be made, and only one of the data items defining the type of data to be output will be present. The data flow consists of the following data items each of which is defined in its own DDE:

dms_updates_for_highways
+ dms_updates_for_roads.

dms_updates_for_highways
This data flow is used within the Manage Traffic function and contains data about the text strings of information concerning incidents that are to be output to drivers on 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:

list_size
+ list_size{indicator_identity
+ dms_advisory_text}.

dms_updates_for_roads

This data flow is used within the Manage Traffic function and contains data about the text strings of information concerning incidents that are to be output to drivers and pedestrians on 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:

list_size
+ list_size{indicator_identity
+ dms_advisory_text}.

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

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.

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 public transport 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 public transport 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 Traveller 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 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_advisory_information

This data flow is used within the Provide Driver and Traveller Services function and contains traffic, transit advisory information, or yellow pages information, plus vehicle control messages, for a driver in a vehicle. It consists of the following data items each of which is defined in its own DDE:

advisory_data
+ emergency_message_auto_output
+ emergency_message_driver_output
+ safety_warnings
+ position_warnings
+ vehicle_control_status
+ vehicle_signage_data
+ vision_data

+ vehicle_status_details.

driver_advisory_information_request

This data flow is used within the Provide Driver and Traveller Services function and contains analyzed requests for the various types of driver display. It contains the following data items each of which is defined in its own DDE:

advisory_display_type
+ advisory_data_scope.

driver_ahs_input

This data flow is used to indicate that AHS mode has been selected (999) by the driver. If set to zero it means that either manual or some other mode of automatic vehicle operation has been selected by the driver.

driver_broadcast_information

This data flow is used within the Provide Driver and Traveller Services function and contains traffic and public transport advisory wide area broadcast information, plus vehicle control messages, for a driver in a vehicle. It consists of the following data items each of which is defined in its own DDE:

broadcast_data
+ emergency_message_auto_output
+ emergency_message_driver_output
+ safety_warnings
+ position_warnings
+ vehicle_control_status
+ vehicle_signage_data
+ vehicle_smart_probe_data_output
+ vehicle_status_details
+ vision_data.

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_credentials

This data flow provides identification of a commercial vehicle driver who is requesting entry or exit from an intermodal facility.

driver_credit_identity

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveller Services function. It contains the credit identity of a driver or the amount of stored credit obtained from the 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_guidance_accepted

This data flow is used within the Provide Driver and Traveller 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 Traveller 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_ahs_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type.

driver_guidance_request
This data flow is used within the Provide Driver and Traveller Services function and requests on-line dynamic or autonomous guidance for the vehicle in which the driver is travelling. 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 (40 characters).

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

driver_input_request
This data flow is used within the Provide Driver and Traveller 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 Traveller 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 Traveller 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_payments_transactions

This data flow is used within the Provide Payment Electronic Services function and contains records of all payment transactions for driver in-vehicle guidance map updates.

driver_map_update_request

This data flow is used within the Provide Driver and Traveller 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

driver_map_update_response

This data flow is used within the Provide Driver and Traveller 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

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 public transport 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 Traveller 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_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_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 public transport fares. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit.

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 function. It contains the expected duration of a particular activity. Although 17 bits would be required to provide 1 second granularity, a 16 bit data element supports time accurate to within a few seconds and will be sufficient for all ITS applications.

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

route
+ route_cost.

dynamic_traveller_guidance_data_request
This data flow is used within the Provide Driver and Traveller Services function and requests on-line dynamic guidance for a traveller 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

dynamic_vehicle_guidance_data
This data flow is used within the Provide Driver and Traveller 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 Traveller Services function. It contains data for use as the request for on-line dynamic guidance of the vehicle in which the driver is travelling. 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_ahs_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type.

electronic_seal_data

This data store contains information about the electronic seal, such as the seal ID number. The data store also contains an electronic version of the container manifest.

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_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 the description of the data required or a time frame over the requested information may be available. held by the function or a request for the data itself.

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 public transport 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_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.

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.

emergency_acknowledge_transit_details

This data flow is sent by the Manage Transit function to the Provide Driver and Traveller Services function to confirm that the request for emergency services previously sent by the traveller has been received from a kiosk or other device. This data flow may also contain the response to input from a panic button that has been activated by a commuter in part of the public transport
operational network, i.e. not on-board a public transport vehicle, or at a public transport stop, but in such things as a modal interchange facility, public transport depot, 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.

emergency_centre_identity
This data flow and contains the identity of an emergency centre 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_other_TMC
This data flow is used within the Manage Traffic function and contains the portion of a strategy that gives priority 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 TMC's so that they can implement the requested priority measures to give the emergency vehicles priority 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_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 and 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 travellers of 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
+ vehicle_security_system_commands.

emergency_disaster_incident_data
This data flow within the Coordinate Disaster Response function contains the incident information provided by the local
emergency management function. This data will be provided to the Disaster Command Authority to support an overall
coordinated response to disaster type events. This item consists of the following data flows each of which is defined in its own DDE:

emergency_response_data_for_management
+ emergency_service_allocations
+ local_decision_support
+ incident_status_data

emergency_input_for_disaster
This data flow from the Manage Emergency Response function contains information concerning how the local emergency
services function is responding to an incident. This information may be used to better coordinate responses to large-scale disasters across a region. This item is made up of the following data flows each of which is defined in its own DDE:

emergency_response_data_for_management
+ emergency_service_allocations
+ local_decision_support
+ incident_status_data
+ traffic_data_for_emergency_services.

emergency_message_auto_output
This data flow is sent from the Provide Vehicle Monitoring and Control function to the Provide Driver and Traveller Services function. It provides data for the display of the response from the Emergency Management System to a previously submitted

emergency_message_driver_output
This data flow is used within the Provide Driver and Traveller 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_traveller_output
This data flow is used within the Provide Driver and Traveller Services function. It provides data for the display of the response from the Emergency Management System to an emergency request previously submitted by the traveller.

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_acknowledge
This data flow is used by the Manage Emergency Services function to confirm that the request for emergency services previously sent by the traveller has been received. It contains the following data items each of which is defined in its own DDE:

emergency_request_traveller_acknowledge
+ emergency_request_personal_traveller_acknowledge
+ emergency_request_driver_acknowledge
+ emergency_request_vehicle_acknowledge.

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 Traveller Services function for

emergency_request_driver_details
This data flow is used by the Provide Driver and Traveller 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_personal_traveller_acknowledge
This data flow is used by the Manage Emergency Services function to confirm that the request for emergency services previously sent by the traveller has been received from a personal device and is therefore sent to the Provide Driver and Traveller 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_traveller_details
This data flow is used by the Provide Driver and Traveller Services function to send data about an emergency declared by a traveller 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
+ traveller_personal_emergency_request.

emergency_request_transit_details
This data flow is sent by the Provide Driver and Traveller Services function to the Manage Transit function to send data about an emergency declared by a traveller at a public transport stop using a kiosk or other device to the Manage Emergency Services function. This can also be used by the commuter to alert the public transport system operator to an emergency situation or incident within the public transport operational network, i.e. not on-board a public transport vehicle, or at a public transport stop, but in such things as a modal interchange facility, public transport depot, etc. It contains the following data items each of which is defined in its own DDE:

date
+ time
+ transit_emergency_request.

emergency_request_traveller_acknowledge
This data flow is used by the Manage Emergency Services function to confirm that the request for emergency services previously sent by the traveller has been received from a kiosk or other device and is therefore sent to the Provide Driver and Traveller Services function for output. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag.

emergency_request_traveller_details

This data flow is used by the Provide Driver and Traveller Services function to send data about an emergency declared by a traveller using a kiosk or other device to the Manage Emergency Services function. It contains the following data items each of which is defined in its own DDE:

date
+ time
+ traveller_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 Traveller 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, travellers, 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.

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_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

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

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_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:

0 - none, cancel previous request
1 - police,
2 - fire,
3 - ambulance,
4 - towing
5 - paramedics,
6 - wrecking crew,
7 - aircraft fire service,
8 - rail breakdown crew,
9 - 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_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 priority. 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_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.

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_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
+ 8{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.

8{emergency_centre_identity
+ emergency_vehicle_identity
+ emergency_vehicle_status_code
+ time
+ date
+ emergency_vehicle_incident_details}.

emergency_vehicle_dispatch_response

This data flow provides current enroute 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
+ 8{emergency_vehicle_type
  + emergency_vehicle_number}
+ incident_number.

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_junction_preemption

This data flow contains data necessary for an emergency services vehicle to be given preemption (priority) at an indicator that is particular set of junction control signals. The data flow is sent directly from the emergency vehicle to the junction controller, which is assumed to be capable of giving priority 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 (priority) 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 priority 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 travelling to be given preemption (priority) at an indicator 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_junction_preemption
+ emergency_vehicle_pedestrian_preemption
+ emergency_vehicle_ramp_preemption
+ emergency_vehicle_sign_preemption.

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 (priority) 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 priority 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_centre_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 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_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 (priority) at an indicator that is a particular dynamic message sign (dms) or fixed message sign that has a public transport 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 alphanumeric character that will enable the sign controller to output the correct message from its list of known messages, or a string of up to twenty (20) alphanumeric 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

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 response personnel. This data flow identifies the emergency vehicle and provides

emergency_vehicle_tracking_data

This data flow is within the Manage Emergency function and contains the current location of an emergency vehicle, together with the time and date to which the location applies. 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:

date
+ time

+ 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.

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 to the Manage Archive data function from the Manage Traffic function. It contains pollution data collected
from sensors allocated at the roadside and from vehicles. It consists of the following data items each of which are defined in its own DDE:

emissions_archive_catalog

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

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 data, such as, pollution data. The data store contains the following data items each of which is defined in its own DDE:

emissions_archive_catalog
+ pollution_archive_data_log
+ pollution_archive_data_log_attributes
+ archive_pollution_state_data
+ archive_pollution_state_data_attributes
+ archive_pollution_reference_data
+ archive_pollution_reference_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 data, such as pollution data. This data flow consists the following items each of which is defined in its own DDE:

pollution_archive_data_log
+ pollution_archive_data_log_attributes
+ archive_pollution_state_data
+ archive_pollution_state_data_attributes
+ archive_pollution_reference_data

+ archive_pollution_reference_data_attributes.

enforcement_agency_address
This data flow contains the full postal address (including postal 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:

0 - none, cancel previous request
1 - police,
2 - SWAT,
3 - 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. It is stored as a string of up to 10 characters.

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. It is stored as a string of up to 30 characters.

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. It is stored as a string of up to 10 characters.

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. It is stored as a string of up to 30 characters.

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. It is stored as a string of up to 10 characters.

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. This is defined as a three character string, the characters signifying the area of responsibility in the following ways:

cv - commercial vehicles
tf - traffic (general, not tolls)
tfp - traffic tolls and parking
trp - transit fares (collection and payment).

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 Provicial Road Transport Department (RTD) 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 RTD 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
+ 1{state_contact_data}50.

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 public transport 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_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 Provicial Road Transport Department (RTD) 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 RTD 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
+ 1{state_contact_data}50.

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 public transport fare violation that takes place at the roadside, i.e. a public transport 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 up to two enforcement agencies and the method by which they should be contacted, plus details of the contacts at the state Road Transport Department offices (RTD's) from which vehicle registration data can be obtained. The enforcement agencies are those to which about each high occupancy vehicle (hov) lane and 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:

1{enforcement_agency_contact
+ enforcement_agency_details}2
+ 1{state_contact_data}50.

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 Provicial Road Transport Department (RTD) 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 RTD 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
+ 1{state_contact_data}50.

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 public transport fare collection violation that takes place on-board a public transport 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.

entry_permission

This data flow contains permission for a commercial vehicle to enter an intermodal transfer facility. This permission could be in the form of a 'green light' indication to the commercial vehicle, or providing a code to the vehicle which will permit entry when the vehicle device is queried at the entrance.

entry_request

This data flow contains a request from a commercial vehicle to enter an intermodal facility. This request could take the form of a vehicle ID, a driver ID, or an entry code which has been previously provided to the vehicle.

environment_data_from_traffic

Internal Flow.

environment_sensor_attributes

This data flow is used to provide meta data included with environment 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.

environment_sensor_configuration_data

This data flow is used within the Manage Traffic function to provide environmental sensor control commands. It consists of the following data items each of which is defined in its own DDE:

environment_sensor_data

This data flow is used within the Manage Traffic function 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
+ list_size{station_id + sensor_identity + environment_sensor_output}.

environment_sensor_fault_data

This data flow is used within the Manage Traffic function to show that an environment sensor has developed a fault that means it is not operating correctly. The fault will have been found by a process that is local to the sensor itself.

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.

environmental_coordination

This data flow from the Process Environmental Sensor Data function contains information about environmental conditions detected by roadside devices that can be used to output to drivers using 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.

environmental_data_for_dissemination

This data flow contains environmental data collected by the maintenance function and road forecasts created using this data or a fusion of the collected data with data from other weather sources. The data flow consists of the following data items each of which is defined in its own DDE:

road_forecasts
+processed_environment_data
+fused_environment_data.

environmental_data_from_maintenance

This data flow contains raw or processed sensor data from environment or road condition sensors. The data may also be fused with weather data from the Malaysian Meteorological Service or forecasts from the Meteorological Service Provider.

environmental_data_from_traffic

This data flow contains raw or processed sensor data from environment or road condition sensors. The data may also be fused with weather data from the Malaysian Meteorological Service or forecasts from the Meteorological Service Provider.

environmental_maintenance_data

This data flow contains environmental data collected by the maintenance function and road forecasts created using this data or a fusion of the collected data with data from other weather sources. The data flow consists of the following data items each of which is defined in its own DDE:

road_forecasts
+processed_environment_data
+fused_environment_data.

environmental_maintenance_status

This data flow from the Process Sensor Data function contains the status and any fault indicators of the environmental sensors placed along the roadway. This data flow consists of the following data items each of which is defined in its own DDE:

environment_sensor_fault_data
+ environmental_sensor_status.

environmental_sensor_control_to_vehicle

This data flow contains control information for environmental or roadside condition sensors on a maintenance vehicle.

environmental_sensor_data_for_maintenance

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
+ list_size{station_id + sensor_identity + environment_sensor_output}.

environmental_sensor_data_for_traffic

This data flow contains data collected from the field equipment, vehicles, and human operators of the traffic maintenace system to provide the Manage Traffic function a view of what is happening on the roadway surfaces in the region.

environmental_sensor_data_from_vehicle

This data flow contains a set of outputs from individual environment sensors that are mounted on the maintenance vehicle. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{sensor_identity + environment_sensor_output}.

environmental_sensor_data_store

This data store is used within the Manage Traffic function to store the state of current fault state of all sensors. The data flow contains the following data items each of which is defined in its own DDE:

environment_sensor_fault_data
+ environmental_sensor_status
+ sensor_fault_data
+ ftop-sensor_fault_data_input
+ fcm-sensor_fault_data
+ tcm-sensor_fault_data
+ ttop-current_sensor_faults.

environmental_sensor_status
This data flow is used within the Manage Traffic function to report the status of an 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 items each of which are defined in its own DDE:

list_size+
1{station_id+
sensor_identity}list_size.

environmental_sensor_status_for_maintenance
This data flow contains information on the status of environmental or roadway condition sensors at the roadside.

environmental_sensor_status_from_vehicle
This data flow contains information on the status of environmental or roadway condition sensors that are mounted on a maintenance vehicle.

equipment_status
This data flow describes the status of the equipment at the time of collection.

erms_incidents
This data flow is sent from the Manage Emergency Services function to the Manage Traffic function. It contains data about incidents and the priority 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
+ incident_details
+ incident_response_status.

error_handling
This data flow identifies the error detection or correction algorithms applied to the data to better facilitate reconstruction of the

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 Organiser.

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 Organiser.

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 Organiser.

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 Organiser.

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 Organiser.

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:

exit_permission
This data flow contains permission for a commercial vehicle to exit an intermodal transfer facility. This permission could be in the form of a 'green light' indication to the commercial vehicle, or providing a code to the vehicle which will permit entry when the vehicle device is queried at the entrance.

exit_request
This data flow contains a request from a commercial vehicle to exit an intermodal facility. This request could take the form of a vehicle ID, a driver ID, or an entry code which has been previously provided to the vehicle.

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

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 the

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.

fare_collection_roadside_violation_information
This data is used by the Manage Transit function to send data about a violator of the public transport fare collection processes at the roadside, i.e. a public transport stop, to the Manage Emergency Services function. This data flow will contain a digitized video image of the commuter 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 (public transport 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
+ transit_user_roadside_image
+ transit_user_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 public transport fare collection processes on-board the vehicle to the Manage Emergency Services function. This data flow will contain a digitized video image of the commuter 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 public transport 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
+ transit_user_vehicle_image
+ transit_user_vehicle_tag_identity.

fare_payment_violator_data

This data flow is used within the Provide Electronic Payment Services function and contains data about a public transport 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.

credit_identity

fare_violation_information

This data is used by the Provide Electronic Payment Services functions to send data about a violator of the public transport fare collection processes to the Manage Emergency Services function. This data will contain a digitized video image of the traveller trying to violate the public transport fare collection process, plus information about the public transport 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
+ transit_user_category
+ transit_user_roadside_image
+ transit_user_vehicle_image
+ traveller_identity.

fault_data

This data flow is used within the Manage Traffic function to collect sensor fault 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:

sensor_fault_data.

fault_data_attributes

This data flow is used to provide meta data included with fault 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.

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 the following can be determined:

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.

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 highway system (ahs) lanes can be determined. This flow would be made up of the following components:

brake_condition
+ drive_train_condition
+ forward_sensors_condition
+ rear sensors_condition
+ side_sensors_condition
+ steering_condition
+ vehicle_procoessor_condition
+ fuel_level_condition
+ tire_wear_and_pressure_condition
+ vehicle_external_communication_condition
+ 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 Road Transport Department (RTD) 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

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_on_ahs_lane
This data flow contains analog sensor input from which the type of automatic highway system (ahs) lane (if any) in which the vehicle is travelling 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 function and 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.

fca_container_release
This data flow contains an indication from Royal Customs Malaysia to the intermodal terminal that the intermodal container has been released from customs and is ready for pickup.

fca_container_seal_status_request
This data flow contains a request for the status of the electronic seal on an intermodal container. The request supports the direct query of the electronic seal by the Royal Customs Malaysia (rather than getting the information through indirect means).

fca_manifest_request
This data flow contains a request for the status of the electronic manifest of an intermodal container. The request supports the direct query of the electronic manifest by the Royal Customs Malaysia (rather than getting the information through indirect means).

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

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.

fcm_c_and_m_archive_data
This data flow from the Maintenance Management Subsystem to the Manage Archived Data function contains a catalog and details of C&M 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:

c_and_m_archive_catalog
+ c_and_m_data_for_archive.

fcm_fault_clearance
This data flow is sent from the Maintenance Management Subsystem to the Manage Traffic function. It contains a report showing that a particular fault in an indicator has been cleared and that it has been restored to normal operation.

fcm_incident_information
This data flow is sent from the Maintenance Management Subsystem to the Manage Traffic function. It contains information about an incident that is about to be created by the proposed start of road maintenance activity which will affect the flow of traffic on one or more lanes of a road or highway. Information contained is location, number of lanes closed, and duration of

fcm_resource_response
This data flow is sent to the Manage Traffic function from the construction and maintenance operations personnel to provide the status of the requested resources by the Maintenance Management Subsystem.

fcm_sensor_fault_data
This data flow is sent from the Maintenance Management Subsystem to the Manage Traffic function. It contains a report showing that a particular fault in a sensor has been cleared and that it has been restored to normal operation.

fcv_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.

fcv_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.

fcv_cargo_safety_status
This data flow contains analog data from on-board commercial vehicle sensors from which the current condition of the vehicle's cargo can be determined.

fcv_distance_travelled
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 travelled by the vehicle (kilometress) can be determined.

fcv_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.

fcv_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.

fcv_lock_tag_data
This data flow is sent from a commercial vehicle to the Manage Commercial Vehicles function. It contains the current status of the lock tag that is used to control access to commercial vehicle cargoes that are being taken across borders, and is sent in response to an earlier request.

fcv_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 weight, size, number of axles, use of trailer, etc.

fcv_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.

fcv_weight
This data flow contains analog data from on-board commercial vehicle sensors from which the vehicle's gross weight can be determined in tons (US).

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 desrcibe, 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_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:

1 - cargo_data,
2 - repairs and service records,
3 - inspection and maintenance data,
4 - fuel purchase data,
5 - driver identity,
6 - driver_credentials,
7 - driver_license_citations,
8 - carrier_identity,

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_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 Traveller Services function when the route origin, destination and intermediate points

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

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_identity
This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and contains the commercial vehicle trip identification number to be entered into the vehicle's tag data store.

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.

fcvm_carrier_number
This data flow is sent from the commercial vehicle 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.

fcvm_driver_number
This data flow is sent from the commercial vehicle 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.

fcvm_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. Commercial vehicle drivers will make this request because they are acting on the role of their own fleet managers, i.e. they will be owner drivers.

fcvm_enrollment_request
This data flow is sent from the commercial vehicle 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.

fcvm_intermodal_dispatch_assignment
This data flow contains instructions for the pickup or delivery of an intermodal container to be sent to a commercial vehicle

fcvm_other_data_input
This data flow is sent from the commercial vehicle 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. Commercial vehicle drivers will make this request because they are acting in the role of their own fleet managers, i.e. they will be owner drivers.

fcvm_preclearance_data
This data flow is sent from the commercial vehicle manager to the Manage Commercial Vehicles function and contains input data defining the route and vehicle identity for which preclearance is required.

fcvm_request_driver_route_instructions
This data flow is sent from the commercial vehicle 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.

fcvm_request_on_board_vehicle_data
This data flow is sent from the commercial vehicle 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.

fcvm_request_tag_data_output
This data flow is sent from the commercial vehicle 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

fcvm_roadside_activity_report_request
This data flow is sent from the commercial vehicle 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.

fcvm_route_data
This data flow is sent from the commercial vehicle manager to the Manage Commercial Vehicles function and contains input defining the requested commercial vehicle route data, e.g. origin, destination, preferences, constraints, etc.

fcvm_route_function_request
This data flow is sent from the commercial vehicle 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.

fcvm_trip_identity
This data flow is sent from the commercial vehicle 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.

fcvm_update_driver_route_instructions
This data flow is sent from the commercial vehicle 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.

fcvm_vehicle_number
This data flow is sent from the commercial vehicle 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.

fcvoir_request_for_information
This data flow contains a request for commercial vehicle operations information such as carrier or vehicle information for use by an organization such as an insurance underwriter.

fd_activate_vehicle_control
This data flow is used by a vehicle driver to activate automatic control of the vehicle.

fd_emergency_request
This data flow is sent from the driver and to the Provide Driver and Traveller Services function. It consists of 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 Traveller 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 Traveller 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 Traveller 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 Traveller 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.

fd_other_services_parking_request
This data flow is input from a driver to the Provide Driver and Traveller 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

fd_other_services_toll_request
This data flow is input from a driver to the Provide Driver and Traveller 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 public transport fare

fd_request_advisory_information
This data flow is sent from the driver to the Provide Driver and Traveller Services function and contains input from the driver specifying the type of advisory display required or to be disabled.

fdca_disaster_maintenance_advisory
This data flow from the Disaster Command Authority terminator contains advisory information to be used by the Manage O&M function during disasters to manage the location and use of maintenance assets.

fdca_disaster_maintenance_request
This data flow from the Disaster Command Authority terminator contains a request for maintenance fleet support during a disaster situation. This data may include requests for equipment to maintain and rebuild infrastructure.

fdca_disaster_response_input
This data flow from the Disaster Command Authority contains a input used by the Manage Emergency Services function to coordiante the way in which the fuction will respond to its assigned duties during a disaster.

fdca_disaster_shelter_availability
This data flow from the Disaster Command Authority contains the availability data concerning shelters to be used to evacuate people in a disaster. This data allows the local Manage Emergency Services function to plan the response for incidents and route emergency reponse teams to the appropriate location.

fdca_disaster_shelter_location
This data flow from the Disaster Command Authority contains the location of area shelters to be used to evacuate people in a disaster. This data allows the local Manage Emergency Services function to route emergency reponse teams to the appropriate

fdca_disaster_traffic_advisory
This data flow from the Disaster Command Authority terminator contains advisory data concerning the extent of the disaster in the region with recommended actions to be taken by the traveller to be disseminated to travellers along the roadway network.

fdca_disaster_traffic_advisory_data
This data flow from the Disaster Command Authority terminator contains information concerning the extent of a disaster or large scale incident. This data flow will carry response activities requested of the Manage Traffic function and recommended

fdca_disaster_traffic_conditions_request
This data flow from the Disaster Command Authority terminator contains a request for traffic information from the Manage Traffic Function. This data may be requested during periods of a natural disaster or other large scale event requiring evacuations or other special traffic controls.

fdca_disaster_transit_advisory
This data flow from the Disaster Command Authority terminator contains advisory data concerning the extent of the disaster in the region with recommended actions to be taken by the transit function.

fdca_disaster_transit_shelter_availability
This data flow from the Disaster Command Authority terminator contains the availability of shelters to be used during disasters by the transit function.

fdca_disaster_transit_shelter_location
This data flow from the Disaster Command Authority terminator contains the location of shelters to be used during disasters by the transit function.

fdca_disaster_traveller_advisory
This data flow from the Disaster Command Authority terminator contains advisory data concerning the extent of the disaster in the region with recommended actions to be taken by the traveller.

fdca_medical_facility_request
This data flow from the Disaster Command Authority contains a request for information concerning the availability and type of service provided by medical facilities in the area served by the function.

fdca_situation_report
This data flow from the Disaster Command Authority contains a report on the status of the disaster situation. This data may be updated periodically during a natural disaster or other large event for which the DCA is in charge.

fdca_transit_evacuation_request
This data flow from the Disaster Command Authority terminator contains requests for public transport vehicle assets to be used to evacuate residents from a disaster area.

fdca_traveller_shelter_availability
This data flow from the Disaster Command Authority terminator contains the availability of shelters to be used during disasters by the Provide Information Services function.

fdca_traveller_shelter_location
This data flow from the Disaster Command Authority terminator contains the location of shelters to be used during disasters by the Provide Information Services function.

fdlmp_cargo_location_request
This data flow contains a request for the location of cargo which is part of an intermodal container. The request supports the direct query of the cargo monitoring system (rather than getting the information through indirect means.

fdlmp_cargo_status_request
This data flow contains a request for the status of cargo which is part of an intermodal container. The request supports the direct query of the cargo monitoring system (rather than getting the information through indirect means.

fdlmp_container_availability_request
This data flow contains the request for information on the availability of a container at an Intermodal Terminal.

fdlmp_container_location_query
This data flow contains a request from the Logistics Solutions Provider for the location of a container which is being tracked by the Freight & Fleet Management Subystem. This dat flow may require the requestor to authenticate their

fdlmp_container_location_request
This data flow contains a request for the location of an intermodal container. The request supports the direct query of the container monitoring system (rather than getting the information through indirect means).

fdlmp_container_pickup_request
This data flow contains the request for permission to pickup a container at an intermodal transfer facility.

fdlmp_container_status_query
This data flow contains the request for data from the sensing systems on-board the container.

fdlmp_container_status_request
This data flow contains a request for the status of an intermodal container. The request supports the direct query of the container monitoring system (rather than getting the information through indirect means.

fdmv_cv_violation_state_identity
This data flow is sent from the Road Transport Department to the Manage Emergency Services function and contains the identity of the state that is supplying the requested vehicle registration data to enable a commercial vehicle credential filing or tax payment violation to be processed.

fdmv_cv_violation_vehicle_registration
This data flow is sent from the Road Transport Department 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_parking_lot_violation_state_identity
This data flow is sent from the Road Transport Department 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

fdmv_parking_lot_violation_vehicle_registration
This data flow is sent from the Road Transport Department 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 Road Transport Department 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 Road Transport Department to the Manage Emergency Services function and contains the requested vehicle registration data to enable a toll payment violation to be processed.

fdmv_traffic_violation_state_identity
This data flow is sent from the Road Transport Department 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 or pollution violation to be processed.

fdmv_traffic_violation_vehicle_registration
This data flow is sent from the Road Transport Department to the Manage Emergency Services function and contains the requested vehicle registration data to enable a high occupancy vehicle (hov) lane or pollution violation to be processed.

fe_area_pollutant_levels
This data flow is used within the Manage Traffic function. It contains analog data from which sensors within ITS can determine the actual levels of various atmospheric pollutants, such as nitrous oxide, sulfur dioxide, hydrocarbons, carbon monoxide and ozone, that are generally present within a particular geographic area. They are therefore really background levels of pollutants that are not due to any particular sources such as road traffic.

fe_roadside_pollutant_levels
This data flow is used within the Manage Traffic function. It contains analog data from which sensors can determine the actual levels of various atmospheric pollutants, such as nitrous oxide, sulfur dioxide, hydrocarbons, carbon monoxide and ozone, that are generally present at the roadside.

fe_roadway_environmental_hazards
This data flow from the Environment terminator includes analog sensor data used by the roadside devices to recognize hazards in the roadway.

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.

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 of and the result of the Built In Self Test (BIST) processing. The status is set to zero for manual input detected and one (1) for normal operation. The BIST result is set to zero (0) for a pass or (999) for a failure.

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. The BIST result is set to zero (0) for a pass and (999) for a failure.

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. The BIST result is set to zero (0) for a pass and (999) for a failure.

feedback_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. The status is set to zero for manual input detected and one (1) for normal operation. The BIST result is set to zero (0) for a pass and (999) for a failure.

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 is set to zero for manual input detected, one (1) for normal operation and (999) if the vehicle or driver is unsafe. The BIST result is set to zero (0) for a pass or (999) for a failure.

feedback_sensor_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 is set to zero for manual input detected and one (1) for normal operation. The BIST result is set to zero (0) for a pass or (999) for a failure.

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 of and the result of the Built In Self Test (BIST) processing. The status is set to zero for manual input detected and one (1) for normal operation. The BIST result is set to zero (0) for a pass and (999) for a failure.

fep_emergency_dispatch_acknowledge
This data flow is sent from the emergency response 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_event_information
This data flow is sent from the Event Organisers 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.

fep_incident_command_request
This data flow identifies commands and resource requests associated with local management of an evolving incident response by emergency response personnel in the field.

fep_incident_status
This data flow is sent from the emergency response 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.

fep_planned_event_data
This data flow is sent from the Event Organisers 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.

ferry_services_costs
This data flow is used within the Provide Driver and Traveller Services function and contains details of the costs for a traveller's use of the services provided by ferry operators that may be suitable for use by a traveller as part of a proposed trip.

8{cost}.

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

ferry_services_details

This data flow is used within the Provide Driver and Traveller Services function and contains details of the services provided by ferry operators that may be suitable for use by a traveller 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_intermediate_arrival_time

This data flow is used within the Provide Driver and Traveller Services function. It contains the time at which a ferry arrives at an intermediate point on the part of a traveller's route to be provided by this type of service. Up to two (2) of these intermediate points are allowed as part of a particular ferry service. These two points are those at which the traveller 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 traveller 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 traveller'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 Traveller Services function. It contains the time at which a ferry departs from an intermediate point on the part of a traveller's route to be provided by this type of service. Up to two (2) of these intermediate points are allowed as part of a particular ferry service. These two points are those at which the traveller 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 traveller 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 traveller'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 Traveller Services function. It contains the location of an intermediate point on a route operated by a ferry company. Up to two (2) of these intermediate points are allowed as part of a particular service and they will all be the locations of ferry ports. They will be places at which the traveller 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 traveller'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 Traveller Services function. It contains the origin of the ferry service(s) that are the closest fit with a traveller'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 traveller 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 Traveller Services function. It contains the time at which a ferry leaves the origin point for ferry services in a traveller's trip plan. This origin may not be the actual origin of the ferry service because the traveller may be joining at some intermediate point along its route. The service will be a close fit with a traveller'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 Traveller Services function. It contains details of a ferry route that will suit a traveller's proposed trip and is associated with a cost and a schedule. The route may have up to two (2) intermediate points at which the services calls, and at which the traveller 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 traveller. The data flow consists of the following data items each of which is defined in its own DDE:

ferry_services_origin
+ 2{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 traveller 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 Traveller Services function. It contains details of the departure and arrival times at places along a ferry route that will suit a traveller's proposed trip and is associated with a cost and a route. The route may have up to four of these places at which the services calls, and at which the traveller may have to change from one flight to
another There may be other places at which the flight calls, but the traveller is expected to remain on-board the ferry and
therefore they are ignored. The data flow consists of the following data items each of which is defined in its own DDE:

ferry_services_origin_depart_time
+ 2{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 traveller as part of a proposed trip. It consists of the following data item which is defined in its own DDE:

8{ferry_services_schedule_details}.

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 that have been reported through this function from the other Emergency Management Centres, 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.

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:

0 - no action,
1 - override the emergency services allocation for an incident (requires the number and type), 2 - data for the allocation criteria store,
3 - a request for output from the log,
4 - 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 incident 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.

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.

ffcs_container_delivery_confirmation
This data flow contains a confirmation from the Freight Consolidation Station that a partial container has been delivered for consolidation, or a full container has been delivered for disbursement.

ffcs_container_pickup_request
This data flow contains a request for pickup of a full container or truckload once the smaller loads have been consolidated.

ffcs_entry_permission
This data flow contains permission for a commercial vehicle to enter a freight consolidation station. This permission could be in the form of a 'green light' indication to the commercial vehicle, or providing a code to the vehicle which will permit entry when the vehicle device is queried at the entrance.

ffcs_exit_permission
This data flow contains permission for a commercial vehicle to exit a freight consolidation station. This permission could be in the form of a 'green light' indication to the commercial vehicle, or providing a code to the vehicle which will permit entry when the vehicle device is queried at the entrance.

ffcs_freight_consolidation_location
This data flow contains the location of a container within the freight consolidation station and is provided to a commercial vehicle driver as they enter the station. It consists of the following data item which is defined in its own DDE:

location_identity.

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 public transport 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

ffi_confirm_charges_payment
This data flow is sent from the Financial Institution to the Provide Electronic Payment Services function and is set to either zero (0) for a parking lot charge payment transaction not completed, or one (1) 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_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_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 commuter for payment for other (yellow pages) services has been

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 yellow services provider for payment to register as a supplier of these services and have details of them made available to travellers and commuters has been accepted and made.

ffi_traveller_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 traveller for payment for the update of the digitized map data used as the background for displays of traffic and travel information on a traveller's personal device has been accepted and made.

ffi_traveller_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 traveller for payment for the update of the navigable map database used for on-line personal guidance has been accepted and made.

ffi_traveller_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 traveller for payment for other (yellow pages) services has been accepted

ffi_traveller_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 traveller for payment for the provision of rideshare services has been

fga_carrier_safety_ratings
This data flow is sent by the government administrator to the Manage Commercial Vehicles function. It contains the current safety rating for a carrier determined as a result of previous roadside safety inspections.

fga_roadside_facility_locations
This data flow is sent by the government administrator to the Manage Commercial Vehicles function. It contains the location of a commercial vehicle roadside checkstation facility.

roadside_facility_list_FB.

fga_tax_and_credential_fees
This data flow is sent from the government agencies to the Manage Commercial Vehicles function and contains data about the taxes and fees payable by commercial vehicle operators for the movement of vehicles through states and across borders.

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).

fic_chassis_data
This data flow is sent to the comercial vehicle and contains measures from the chassis systems, such as brakes, tires, and fasteners.

fic_chassis_status
This data flow is sent to the commercial vehicle and contains an overal operational readiness status of the chassis. The data flow can contain a general status operation readiness indication such as 'green'/'red'.

fic_container_delivery_confirmation
This data flow contains confirmation that an intermodal shipment has been delivered to an intermodal facility.

fic_freight_consignment_request
This data flow contains a request from the intermodal customer for services to handle shipping of a container or freight load.

fic_shipment_status_request
This data flow contains a request from the intermodal customer for the current location or public transport status of a freight shipment. The request would specify the shipment ID, or number.

fifd_freight_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,

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.

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:

cf_manager_enrollment_cost
+ 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

fispo_archive_commands
This data flow is sent from the ISP system operator to the Provide Driver and Traveller Services function and contains data administration commands that the Provide Driver and Traveller Services function will use to control the archival of traveller 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_broadcast_data_parameters_request
This data flow is sent from the ISP operator to the Provide Driver and Traveller Services function. It contains a request for the output of the parameters used in the output of wide area information broadcasts.

fispo_broadcast_data_parameters_update
This data flow is sent from the ISP operator to the Provide Driver and Traveller Services function. It contains updates of parameters used in wide area information broadcast to drivers and commuters in vehicle. These parameters are used to 'filter' the available data to pick out that which is unusual or which is useful if broadcast.

fispo_request_other_routes_selection_map_data_update
This data flow is sent from the ISP operator to the Provide Driver and Traveller Services function. It contains a request for an update of the digitized map data used by the process that selects non-vehicle or public transport based routes for use in traveller'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 Traveller 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 traveller's trip plans and on-line driver guidance. The request will go to the process that manages the store of this data and provides the interface with the map

fispo_route_selection_parameters_request
This data flow is sent from the ISP operator to the Provide Driver and Traveller 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 Traveller 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 travellers and on-line guidance to drivers.

fispo_trip_planning_parameters_request
This data flow is sent from the ISP operator to the Provide Driver and Traveller 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 Traveller Services function and contains an update of the parameters used to govern the selection of routes by the trip planning processes.

fm_emergency_information_request
This data flow contains a request for data on emergencies to be sent to the Media. The request must specify the type and severity of emergency desired to be reported on, and the geographic area(s) to which it should relate.

fm_incident_data_request
This data flow contains a request for data on incidents to be sent to the Media. The request must specify whether all, current incidents or planned events are required, in the latter case state the time period by date and hour range, and the geographic area(s) to which it should relate.

fm_incident_details
This data flow contains data about an incident that has been reported by a member of the travelling 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

fm_incident_information
This data flow contains data about an incident that has been reported by a member of the travelling 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

fm_incident_information_request
This data flow contains a request for data on incidents to be sent to the Media. The request must specify whether all, current incidents or planned events are required, in the latter case state the time period by date and hour range, and the geographic area(s) to which it should relate.

fm_traffic_data_request
This data flow is contains a request from the Media for traffic information. The request must specify the type of information required (flow/congestion) and the geographic area(s) to which it should relate.

fm_traffic_information_request
This data flow contains a request from the Media for traffic information. The request must specify the type of information required (flow/congestion) and the geographic area(s) to which it should relate.

fm_transit_incident_information_request
This data flow contains a request for data on incidents to be sent to the Media. The request must specify whether all, current incidents or planned events are required, in the latter case state the time period by date and hour range, and the geographic area(s) to which it should relate.

fm_transit_schedule_deviations_request
This data flow contains a request for data on details of deviations from schedule of regular public transport services.

fm_transit_vehicle_deviations_request
This data flow contains a request for data on schedule deviations of specific public transport vehicles or routes.

fm_traveller_information
This data flow is sent from the media to the Provide Driver and Traveller Services function and contains information that the media has that might be of interest to travellers planning trips. This may include, but not be limited to such things as sports or

fmf_medical_facility_availability
This data flow from the Medical Facility terminator contains information about the type of medical facilities in an area and their availability.

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_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.

fmo_maintenance_operator_inputs
This data flow sent from the Maintenance Management Operator Terminator contains commands from the operator and configuration information to control the operation of the Operations and Maintenance function.

fmsp_roadway_micro_prediction
This data flow contains forecasts of weather and roadway conditions at a fine level of resolution (e.g. for individual links in the road network).

fmsp_weather_prediction
This data flow is sent to the Manage Traffic function and the Provide Driver and Traveller Services functions. It contains details of the predicted local weather and anticipated pavement conditions.

fmtsp_air_services
This data flow is sent from the multimodal transportation service provider to the Provide Driver and Traveller Services function and contains details of the regular and charter air services available to move travellers.

fmtsp_ferry_services
This data flow is sent from the multimodal transportation service provider to the Provide Driver and Traveller Services function and contains details of the sea and river ferry services available to move travellers.

fmtsp_individual_service_response
This data flow contains the portion of an individual service request that can be provided by a multimodal transportation service

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 from the multimodal transportation service provider to the Provide Driver and Traveller Services function and contains confirmation that a previous request from a traveller for an alternate mode service has been accepted.

fmtsp_rail_services
This data flow is sent from the multimodal transportation service provider to the Provide Driver and Traveller 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

fmtsp_service_response
This data flow contains the coordination of a multimodal transportation service provider's routes with that of a public transport agency for connection protection on a route by route basis.

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 for the local regular public transport operation and will enable the two groups of services to be coordinated for the benefit of the traveller.

fmup_demand_display_update
This data flow is sent from the Mapping Service 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

fmup_emergency_display_update
This data flow is sent from the Mapping Service 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

fmup_emergency_route_map_update
This data flow is sent from the Mapping Service 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_incident_display_update
This data flow is sent from the Mapping Service 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_map_archive_data
This data flow from the Mapping Service 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_other_routes_map_data
This data flow is sent by the Mapping Service Provider to the Provide Driver and Traveller Services function and contains a new copy of the digitized map data used by the process that selects other, i.e. non-vehicle and non-public transport, routes.

fmup_pollution_display_update
This data flow is sent from the Mapping Service 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

fmup_route_selection_map_data
This data flow is sent by the Mapping Service Provider to the Provide Driver and Traveller Services function. It contains an update of the digitized map data used by the route selection facility to produce vehicle based routes for trip planning and on-line guidance

fmup_traffic_display_update
This data flow is sent from the Mapping Service 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

fmup_transit_map_update
This data flow is sent from the Mapping Service 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 public transport fleet manager.

fmup_traveller_display_update
This data flow is sent from the Mapping Service Provider to the Provide Driver and Traveller 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 travellers. 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_traveller_map_update
This data flow is sent from the Mapping Service Provider to the Provide Driver and Traveller Services function and contains data for a new guidance map to be used by the on-line traveller guidance facility.

fmup_traveller_map_update_cost
This data flow is sent from the Mapping Service Provider to the Provide Driver and Traveller Services function and contains the cost for a new navigable map database to be used by the traveller personal on-line guidance facility.

fmup_traveller_personal_display_update
This data flow is sent from the Mapping Service Provider to the Provide Driver and Traveller 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 travellers. 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_traveller_personal_display_update_cost
This data flow is sent from the Mapping Service Provider to the Provide Driver and Traveller 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 traveller's personal device.

fmup_vehicle_map_update
This data flow is sent from the Mapping Service Provider to the Provide Driver and Traveller 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 Mapping Service Provider to the Provide Driver and Traveller Services function and contains the cost for a new navigable map database to be used by the on-line vehicle guidance facility.

fmv_maintenance_measures

This data flow contains (possibly analog) data from the non ITS portions of the maintenance vehicle (e.g. brakes, odometer, engine systems) that is measured by on-board ITS equipment.

fmvd_maintenance_driver_inputs
This data from the Maintenance Vehicle Driver terminator contains commands from the driver and configuration information to control the operation of the on-board systems.

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_commit_local_enrollment
This data flow is sent from the other commercial vehicle administration system to the Manage Commercial Vehicles function and contains a request for the commitment of the enrollment of the carrier, vehicle and driver that has been previously enrolled. This means that the other remote enrollment transactions were successful.

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_enrollment_confirmation
This data flow is sent from the other commercial vehicle administration system to the Manage Commercial Vehicles function and contains confirmation that enrollment of the carrier, vehicle and driver has been accepted.

focvas_enrollment_request
This data flow is sent from the other commercial vehicle administration system to the Manage Commercial Vehicles function and contains a request for enrollment of the carrier, vehicle and driver.

focvas_provide_data
This data flow is sent from the other commercial vehicle administration system to the Manage Commercial Vehicles function and contains a request for data about required taxes and credential fees to be provided.

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

foec_emergency_centre_identity
This data flow is sent from the other emergency centres to the Manage Emergency Services function and contains the identity of an emergency centre that has reported an incident. The details of this incident are contained in a parallel data flow. This data flow consists of the following data item which is defined in its own DDE:

emergency_centre_identity.

foec_incident_data_FB
This data flow is sent from the other emergency centres to the Manage Emergency Services function and contains data about an incident that has been reported in an area outside that served by the local function. It consists of the following data items each of which is defined in its own DDE:

foec-emergency_centre_identity
+ foec-incident_details
+ foec-incident_response_coordination.

foec_incident_details
This data flow is sent by the other emergency centres 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:

incident_location
+ incident_number
+ incident_description
+ incident_start_time
+ incident_duration
+ incident_severity
+ incident_type.

foec_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. 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.

foec_mayday_emergency_data

This data flow is sent by the other emergency centres 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

foifms_shipper_container_release

This data flow contains an indication that a container has been released by the shipper upon arrival at an intermodal terminal.

foifms_shipping_coordination

This data flow contains the exchange of information between different Intermodal Freight Management centres regarding cargo or intermodal container movement. The information may involve unit ID, location, and status.

foisp_data_supply

This data flow is sent to the Provide Driver and Traveller Services function and contains a set of road data covering the local geographic area for use by the similar function in an ISP covering another geographic area. It consists of the following data item which is defined in its own DDE:

road_data.

foisp_request_data

This data flow is sent to the Provide Driver and Traveller Services function and contains a request for a set of road data covering another geographic area outside that covered by the ISP supporting the local function.

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 (eg. 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_model_data_for_retrieval.

foisp_traffic_information_request
This data flow contains a request (either as a subscription or as individual request) from another ISP for available traffic data to be sent. This allows an ISP to act as a wholesaler and send data to other ISPs.

foisp_transit_data
This data flow is used to provide data on the current state of public transport operations (regarding both incidents and public transport vehicle schedule status) and is sent from anther ISP (eg. 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.

foisp_transit_information_request
This data flow contains a request (either as a subscription or as individual request) from another ISP for available public transport data to be sent. This allows an ISP to act as a wholesaler and send data to other ISPs.

fop_parking_coordination_data
This data flow is sent by the other parking management centre to the Manage Parking Lot state function and contains data from the other parking centres about services which have an interface into the area covered by services from the local centre.

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
+ traveller_archive_catalog
+ toll_archive_catalog
+ multimodal_archive_catalog + weather_archive_catalog + intermodal_archive_catalog + c_and_m_archive_catalog + map_archive_catalog
+ other_data_source_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_traveller_data
+ formatted_toll_data
+ formatted_multimodal_data + formatted_weather_data + formatted_intermodal_data + formatted_c_and_m_data + formatted_map_data
+ formatted_user_defined_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_traveller_data_attributes
+ formatted_toll_data_attributes
+ formatted_multimodal_data_attributes
+ formatted_weather_data_attributes
+ formatted_intermodal_data_attributes
+ formatted_c_and_m_data_attributes
+ formatted_map_data_attributes

formatted_c_and_m_data
This data flow contains construction and maintenance 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:

c_and_m_data.

formatted_c_and_m_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:

c_and_m_data_attributes.

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 is detailed information on emissions data, such as 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 the following items each of which is defined in its own DDE:

pollution_archive_data_log
+ archive_pollution_state_data
+ archive_pollution_reference_data.

formatted_emissions_data_attributes
This data flow contains the meta data that describes the on emissions data, such as pollution data. 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:

pollution_archive_data_log_attributes
+ archive_pollution_state_data_attributes
+ archive_pollution_reference_data_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_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.

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.

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:

sensor_data_archive_input
+ archive_environmental_sensor_data
+ fault_data
+ sensor_status.

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:

sensor_data_attributes
+ environment_sensor_attributes
+ fault_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
+ ahs_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
+ ahs_operational_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
+ transit_user_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_driver_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 public transport 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_traveller_data

This data flow contains details of all of the service requests and confirmations input by the traveller via a personal device or kiosk, route guidance data, vehicle guidance probe data, parking lot data, trip requests and traveller rideshare requests and data, other-routes data, road network use data, and traveller 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:

service_req_and_confirm_for_archive
+ guidance_data_for_archive
+ traveller_info_payments_transactions + parking_lot_data_for_archive
+ trip_request_for_archive
+ rideshare_for_archive
+ usage_for_archive.

formatted_traveller_data_attributes

This data flow contains the meta data that describes the driver and traveller information being archived. The meta data attributes may have been altered and updated by the Get Archive Data function. It contains the following data items each of which is defined in its own DDE:

service_req_and_confirm_for_archive_attributes + guidance_data_for_archive_attributes
+ traveller_info_payments_transactions_attributes + parking_lot_data_for_archive_attributes
+ trip_request_for_archive_attributes
+ rideshare_for_archive_attributes
+ usage_for_archive_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_other_roadside_request
This data flow contains a request for traffic surveillance or other sensor data from the Other Roadside terminator. This allows adjacent roadside devices to coordinate the collection and output of traveller advisories without the need to be connected to a traffic management centre.

fors_other_roadway_sensor_controls
This data flow from the Other Roadside terminator contains control and data information from adjacent roadside devices to use to make local adjustments to traffic signals or traveller and driver information devices.

fotc_data_request
This data flow is sent to from other traffic centres to the Manage Traffic function and contains a request for data to be sent to another Traffic Management Centre (TMC) from the local TMC. It consists of the following data item which is defined in its own DDE:

other_TMC_data_request

fotc_identity
This data flow is sent from the other traffic centres to the Manage Traffic function and contains the identity of the remote (originating) Traffic Management Centre - TMC for the accompanying data that covers geographic or jurisdictional area(s) outside that served by the local TMC. It consists of the following data item which is defined in its own DDE:

tmc_identity.

fotc_request_local_TMC_data_FB
This data flow is sent from the other traffic centres (TM) to the Manage Traffic function and contains a request for data to be sent from one Traffic Management Centre (TMC), in this case the local TMC, to another (remote) TMC. It consists of the following data items each of which is defined in its own DDE:

fotc-data_request
+ fotc-identity.

fotc_traffic_control_and_status
This data flow is sent from the other traffic centres to the Manage Traffic function and contains status and control data which is being transferred from one (remote) Traffic Management Centre (TMC) to another, in this case the local TMC. It consists of the following data items each of which is defined in its own DDE:

other_control_data_for_roads
+ other_control_data_for_highways
+ other_status_for_roads
+ other_status_for_highways.

fotc_transfer_data
This data flow is sent from the other traffic centres to the Manage Traffic function and contains the data which is being transferred from one (remote) Traffic Management Centre (TMC) to another, in this case the local TMC. It consists of the following data items each of which is defined in its own DDE:

other_current_data
+ other_long_term_data
+ other_planned_events
+ other_TMC_cv_incidents
+ permit_coordination
+ other_TMC_emergency_data.

fotc_transfer_other_TMC_data_FB
This data flow is sent from the other traffic centres (TM) to the Manage Traffic function and contains the data which is being transferred from one (remote) Traffic Management Centre (TMC) to another, in this case the local TMC. It consists of the following data items each of which is defined in its own DDE:

fotc-identity
+ fotc-transfer_data
+ fotc-traffic_control_and_status.

fotrm_individual_service_response
This data flow contains the portion of an individual service request that can be provided by an Other Public Transport Management system.

fotrm_service_response
This data flow contains the portion of a connection protection coordination from an Other Public Transport Management system.

fotrm_transit_services
This data flow is sent by the other PTM (other public transport centre) to the Manage Transit function and contains data from the other public transport centre about services which have an interface into the area covered by services from the local centre.

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 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.

fpi_commercial_manager_input_credit_identity
This data flow is sent from the 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 the commercial vehicle fleet manager, working in an office environment. A payment instrument is a device that can be used to make payments, e.g. a debit card, a credit card. It will belong to the financial institution responsible for its issue and not to the user.

fpi_confirm_fare_payment_at_roadside
This data flow is sent from the payment instrument to the Provide Electronic Payment Services function. It contains confirmation that the requested payment of the current public transport fare, plus if required the cost of advanced tolls, and/or parking lot charges, and/or public transport 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

fpi_confirm_fare_payment_on_transit_vehicle

This data flow is sent from the payment instrument to the Provide Electronic Payment Services function. It contains confirmation that the requested payment of the current public transport fare, plus if required the cost of advanced tolls, and/or parking lot charges, and/or public transport 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

fpi_confirm_payment_at_parking_lot

This data flow is sent from the 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.

fpi_confirm_payment_at_toll_plaza

This data flow is sent from the 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 public transport 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

fpi_driver_vehicle_input_credit_identity

This data flow is sent from the 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 public transport vehicle, or a commercial vehicle. A payment instrument is a device that can be used to make payments, e.g. a debit card, a credit card. It will belong to the financial institution responsible for

fpi_parking_tag_data

This data flow is sent from the 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 public transport fares. The vehicle may be a private car or van, or a public transport vehicle, or a commercial vehicle. In the case of a public transport vehicle, the payments will be for the vehicle itself and not for its passengers, i.e. commuters. A payment instrument is a device that can be used to make payments, e.g. a debit card, or a device that contains stored credit that can be used for actual payments. It will belong to the financial institution responsible for its issue and not to the user, who in this instance is the vehicle driver.

fpi_toll_tag_data

This data flow is sent from the 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 public transport fares. The vehicle may be a private car or van, a public transport vehicle, or a commercial vehicle. In the case of a public transport vehicle, the payments will be for the vehicle itself and not for its passengers, i.e. commuters. A payment instrument is a device that can be used to make payments, e.g. a debit card, or a device that contains stored credit that can be used for actual payments. It will belong to the financial institution responsible for its issue and not to the user, who in this instance is the vehicle driver.

fpi_transit_roadside_tag_data

This data flow is sent from the 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 public transport stop. In either case the data will be used to enable automatic billing for the current public transport fare, plus if required, advanced payments for tolls, and/or parking lot charges and/or public transport fares. A payment instrument is a device that can be used to make payments, e.g. a debit card, or a device that contains stored credit that can be used for actual payments. It will belong to the financial institution responsible for its issue and not to the user, who in this instance is the commuter.

fpi_transit_user_roadside_input_credit_identity

This data flow is sent from the payment instrument to the Provide Electronic Payment Services function. It contains the data necessary to allow automatic billing of the commuter for advanced tolls, and/or parking lot charges, and/or public transport fares, when the user is at the roadside, i.e. a public transport stop. A payment instrument is a device that can be used to make payments, e.g. a debit card, or a stored value card. It will belong to the financial institution responsible for its issue and not to the user.

fpi_transit_user_vehicle_input_credit_identity
This data flow is sent from the payment instrument to the Provide Electronic Payment Services function. It contains the data necessary to allow automatic billing of the commuter for advanced tolls, and/or parking lot charges, and/or public transport fares, when the user is on-board a public transport vehicle. A payment instrument is a device that can be used to make payments, e.g. a debit card, or a stored value card. It will belong to the financial institution responsible for its issue and not to the user.

fpi_transit_vehicle_tag_data
This data flow is sent from the 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 public transport vehicle. In either case the data will be used to enable automatic billing for the current public transport fare, plus if required, advanced payments for tolls, and/or parking lot charges and/or public transport fares. The payments will be for the public transport vehicle passengers, i.e. commuters and not for the vehicle itself. A payment instrument is a device that can be used to make payments, e.g. a debit card, or a device that contains stored credit that can be used for actual payments. It will belong to the financial institution responsible for its issue and not to the user, who in this instance is the commuter.

fpi_traveller_personal_input_credit_identity
This data flow is sent from the 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 traveller to provide travel information, trip planning, or on-line guidance during a multimodal trip. A payment instrument is a device that can be used to make payments, e.g. a debit card, or a stored value card which itself contains credit that can be used to make payments. It will belong to the financial institution responsible for its issue and not to the user.

fpi_traveller_roadside_input_credit_identity
This data flow is sent from the 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 traveller information and trip planning. A payment instrument is a device that can be used to make payments, e.g. a debit card, or a stored value card which itself contains credit that can be used to make payments. It will belong to the financial institution responsible for its issue and not to the user.

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 to the Provide Electronic Payment 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 traveller making a parking lot reservation.

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.

fre_environmental_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 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_hazards
This data flow contains analog data from which sensors at the roadside can determine the presence of hazardous conditions in the road such as a mud slide, smoke, etc.

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

fre_roadside_hazards
This data flow is sent by the roadway environment to the Manage and Control On-Board Maintenance Systems function. It contains analog data from which sensors on-board the vehicle can determine the presence of hazardous conditions in the road such as a mud slide, smoke, etc.

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., 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.

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.

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_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

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 item which is defined in its own DDE:

fada-archive_administration_requests.

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_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, public transport 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_ahs_lane
+ fbv-vehicle_proximity_data
+ fbv-vehicle_safety_status
+ fbv-vehicle_security_status
+ fbv-vehicle_speed.

From_C_and_M

This data flow is sent to the Manage Traffic function. It contains either information about road and highway repairs from the Construction and Maintenance organization or indicator fault clearance data. It consists of the following data items each of which is defined in its own DDE:

fcm-fault_clearance
+ fcm-incident_information
+ fcm-resource_response
+ fcm-sensor_fault_data
+ fcm-c_and_m_archive_data.

From_Commercial_Vehicle

This data flow is sent from a commercial vehicle to the Manage Commercial Vehicles and Provide Vehicle Monitoring and Control 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:

fcv-brake_condition
+ fcv-cargo_data
+ fcv-cargo_safety_status
+ fcv-distance_travelled
+ fcv-driver_safety_status
+ fcv-driver_status
+ fcv-lock_tag_data
+ fcv-vehicle_safety_status
+ fcv-weight
+ fcv-vehicle_characteristics.

From_Commercial_Vehicle_Driver

This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and contains data that has been input by a driver acting either as a driver, or acting as a commercial vehicle manager. It consists of the following data items each of which is defined in its own DDE:

fcvd-activity_request
+ fcvd-carrier_number
+ fcvd-driver_data_input
+ fcvd-driver_general_message
+ fcvd-driver_input_type
+ 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_identity
+ fcvd-vehicle_number.

From_Commercial_Vehicle_Manager

This data flow is sent from the commercial vehicle manager to the Manage Commercial Vehicles function and contains data that has been input by a commercial vehicle fleet manager. It consists of the following items each of which is defined in its own DDE:

fcvm-carrier_number
+ fcvm-driver_number
+ fcvm-enrollment_payment_request
+ fcvm-enrollment_request
+ fcvm-other_data_input
+ fcvm-preclearance_data
+ fcvm-request_driver_route_instructions
+ fcvm-request_on_board_vehicle_data
+ fcvm-request_tag_data_output
+ fcvm-roadside_activity_report_request
+ fcvm-route_data
+ fcvm-route_function_request
+ fcvm-trip_identity
+ fcvm-update_driver_route_instructions

From_CVO_Information_Requestor

This data flow is sent to the commercial vehicle information requester from the Manage Commercial Vehicle function. It contains a request for commercial vehicle operations information. The data flow consists of the following item which is defined in its own DDE:

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_Disaster_Command_Authority

This data flow from the Disaster Command Authority terminator contains data and request for data pertaining to the management and coordination during natural or man-made disaster events. This data flow is made up of the following items each of which is defined in its own DDE:

fdca-medical_facility_request
+ fdca-situation_report
+ fdca-disaster_response_input
+ fdca-disaster_shelter_availability
+ fdca-disaster_shelter_location
+ fdca-disaster_traffic_conditions_request
+ fdca-disaster_traffic_advisory_data.

From_DMV

This data flow is sent from the Road Transport Department to the Manage Traffic function in response to a request from a valid ITS operation for vehicle registration data to be used in calculating tolls, verification of emissions compliance, etc.

fdmv-cv_violation_state_identity
+ fdmv-cv_violation_vehicle_registration
+ 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.

From_Driver

This data flow is sent from the driver to both the Provide Electronic Payment Services and the Provide Driver and Traveller Services functions. It contains data input by a driver for in-vehicle services such as guidance, travel advisory and automatic vehicle control. It consists of the following data items each of which is defined in its own DDE:

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-activate_vehicle_control.

From_Emergency_Personnel

This data flow is sent from the emergency response 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_request.

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-archive_commands.

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 travellers, 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_Enforcement_Agency

This data flow is a response from an enforcement agency to a request for data from commercial vehicle administration.

fea-cv_enforcement_agency_response.

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-area_pollutant_levels

From_Event_Promoters

This data flow is sent from the Event Organisers terminator to the Provide Driver and Traveller Services and Manage Traffic functions. It contains the following data items each of which is defined in its own DDE:

fep-event_information
+ fep-planned_event_data.

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-traveller_display_payment_confirm
+ ffi-traveller_map_payment_confirm
+ ffi-traveller_other_services_payments_confirm
+ ffi-traveller_rideshare_payment_confirm
+ ffi-archive_payment_confirm

From_Govt_Admin

This data flow is sent from the government administrator to the Manage Commercial Vehicles function. It contains data about vehicles and the carriers that operate them, details of the taxes and fees payable by commercial vehicle operators for the movement of vehicles through states and across borders, plus the location of commercial vehicle roadside checkstation facilities. The data flow consists of the following data items each of which is defined in its own DDE:

fga-tax_and_credential_fees
+ fga-carrier_safety_ratings
+ fga-roadside_facility_locations.

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 is 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_data
+ fifd-intermodal_archive_data.

From_Intermodal_Freight_Shipper

This data flow is used within the Manage Commercial Vehicles function and contains data about the services available to ship freight by means other than commercial vehicles, e.g. heavy rail, air, sea, river, etc.

From_ISP_Operator

This data flow is sent from the ISP operator to the Provide Driver and Traveller Services function. It may contain updates of parameters used in wide area information broadcast, 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. The data flow consists of the following items each of which is defined in its own DDE:

fispo-broadcast_data_parameters_request
+ fispo-broadcast_data_parameters_update
+ 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.

From_Location_Data_Source

This data is sent to a number of processes. It contains the current state of such things as GPS signals, magnetic flux and other location data sources. The data is sent to sensor processes for conversion into an actual vehicle location.

From_Maintenance_Operator

This data from the Maintenance Management Operator Terminator contains commands from the operator and configuration information to control the operation of the Operations and Maintenance function. This DDE is made up of the following DDEs each of which is defined in its own DDE:

fmo-maintenance_operator_inputs.

From_Maintenance_Vehicle

This data flow is sent from the maintenance vehicle to the Manage O&M function and contains data that has been collected on-board the vehicle. It consists of the following data items each of which is defined in its own DDE:

ftv-vehicle_measures_data.

From_Maintenance_Vehicle_Driver

This data from the Maintenance Vehicle Driver terminator contains commands from the driver and configuration information to control the operation of the on-board systems. This DDE is made up of the following DDEs each of which is defined in its own DDE:

From_Map_Update_Provider

This data flow is sent to several ITS functions by the Mapping Service Provider. It contains new digitized map data for displays, on-line vehicle and traveller guidance plus system evaluation, public transport 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, public transport routes and pollution data, while the guidance data is used by the on-line vehicle and traveller 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-incident_display_update
+ fmup-other_routes_map_data
+ fmup-pollution_display_update
+ fmup-route_selection_map_data
+ fmup-traffic_display_update
+ fmup-transit_map_update
+ fmup-traveller_display_update
+ fmup-traveller_map_update
+ fmup-traveller_map_update_cost
+ fmup-traveller_personal_display_update
+ fmup-traveller_personal_display_update_cost
+ fmup-vehicle_map_update
+ fmup-vehicle_map_update_cost
+ fmup-map_archive_data
+ fmup-emergency_route_map_update.

From_Media

This data flow is sent from the Media to the Manage Traffic and Provide Driver and Traveller Services function. It provides input of data regarding incidents identified by the Media and traveller information, as well as requests for incident or traffic information. The data flow consists of the following data items each of which is defined in its own DDE:

fm-incident_data_request
+ fm-incident_details
+ fm-incident_information
+ fm-incident_information_request
+ fm-traffic_data_request
+ fm-traffic_information_request
+ fm-traveller_information
+ fm-emergency_information_request
+ fm-transit_incident_information_request
+ fm-transit_schedule_deviations_request
+ fm-transit_vehicle_deviations_request.

From_Meteorological_Service_Provider

This data flow consists of data that is provided by the Meteorological Service Provider terminator and is sent to the Provide Driver and Traveller Services and Manage Traffic functions. This data flow contains the following items each of which is defined in its own DDE:

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.

From_Multimodal_Transportation_Service_Provider

This data flow is sent from the multimodal transportation service provider to the Provide Driver and Traveller Services function and contains details of the services available to move travellers by means other than road vehicles, e.g. heavy rail, air, sea, river, etc. It consists of the following data items each of which is defined in its own DDE:

fmtsp-air_services
+ fmtsp-multimodal_service_confirmation
+ fmtsp-ferry_services
+ fmtsp-rail_services
+ fmtsp-transit_service_data
+ fmtsp-multimodal_archive_data.

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 from the Manage Commercial Vehicles function and contains requests for data from and data provided against previous requests. It consists of the following data items each of which is defined in its own DDE:

focvas-commit_local_enrollment
+ focvas-data_table
+ focvas-enrollment_request
+ focvas-enrollment_confirmation
+ focvas-provide_data.

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_EM

This data flow is sent by the other emergency centres 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:

foec-incident_data_FB
+ foec-mayday_emergency_data.

From_Other_ISP

This data flow represents the data (and requests) passed from an Other ISP (information service provider) The first two flows are used when an ISP outside the area of operations of the local providers requests or sends data. The remainder of the flows represent 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-data_supply
+ foisp-request_data
+ foisp-traffic_information_request
+ foisp-traffic_data
+ foisp-transit_information_request
+ foisp-transit_data.

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_TM

This data flow is sent by other traffic centres (TM) to the Manage Traffic function and contains traffic data about geographic

areas of operation are outside those of the local centre. It consists of the following data items each of which is defined in its own DDE:

fotc-request_local_TMC_data_FB

From_Other_TRM

This data flow is sent by the other PTM (other public transport centre) to the Manage Transit function and contains data from the other public transport centres. It consists of the following data item which is defined in its own DDE:

fotrm-transit_services.

From_Other_Vehicle

This data flow is used within the Provide Vehicle Monitoring and Control function to receive data from other vehicles in a platoon when in platoon following mode of vehicle operation.

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_Instrument

This data flow is sent from the payment instrument to the Provide Electronic Payment Services function. It consists of the following data items each of which is defined in its own DDE:

fpi-commercial_manager_input_credit_identity
+ fpi-confirm_payment_at_parking_lot
+ fpi-confirm_fare_payment_at_roadside
+ fpi-confirm_fare_payment_on_transit_vehicle
+ fpi-confirm_payment_at_toll_plaza
+ fpi-driver_vehicle_input_credit_identity
+ fpi-parking_tag_data
+ fpi-toll_tag_data
+ fpi-transit_roadside_tag_data
+ fpi-transit_user_roadside_input_credit_identity
+ fpi-transit_user_vehicle_input_credit_identity
+ fpi-transit_vehicle_tag_data
+ fpi-traveller_personal_input_credit_identity
+ fpi-traveller_roadside_input_credit_identity.

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 whilst the 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.

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_Rail_Operations

This data flow is sent from a railroad operated operations centre (or centres) to the ITS Manage Traffic function. 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, 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.

From_Roadway

This data flow contains analog information about the roadway. It is sent to the Provide Vehicle Monitoring and Control function and the Manage O&M function where sensors on-board maintenance vehicles detect road characteristics.

From_Roadway_Environment

This data flow is sent from the roadway environment to the Provide Vehicle Monitoring and Control 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.

From_Secure_Area_Environment

This data flow is sent from the secure area environment to the Manage Transit function and represents information about conditions in a secure area environment such as that found in a public transport network. This information is sensed/detected by sensors contained in the Manage Transit function, and is most probably image data, but switches such as a 'panic button' are also represented by this flow. This data flow consists of the following data items each of which is defined in its own DDE:

fsa-area_image.

From_Toll_Administrator

This data flow is sent to the Provide Electronic Payment Services function by the toll administrator. It contains the response to requests for changes in 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:

fta-confirm_advanced_toll
+ fta-toll_price_changes_response
+ fta-toll_price_data
+ fta-archive_commands.

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 function. It contains analog data from traffic on roads and highways that can be read by sensors within ITS. It consists of the following items each of which is defined in its own DDE:

ft-traffic_images
+ ft-traffic_data
+ ft-vehicle_pollutant_levels.

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 pollution data, or to control closed circuit television (cctv) systems, or to provide new parameters for use by processes in the Traffic Incident, Demand and Environment Management facilities. It also provides information about roadway characteristics (shoulder width, pavement type, speed limit, etc.) 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-indicator_fault_data_input
+ ftop-indicator_fault_data_request
+ ftop-indicator_fault_data_update
+ ftop-pollution_data_information_request
+ ftop-pollution_parameter_updates
+ ftop-strategy_override
+ ftop-traffic_information_requests
+ ftop-traffic_data_parameter_updates
+ ftop-video_camera_strategy_change
+ ftop-resource_request
+ ftop-sensor_fault_data_input
+ ftop-weather_request_information
+ ftop-roadway_characteristics
+ ftop-static_data
+ ftop-archive_command.

From_Transit_Driver

This data flow is sent to the Manage Transit function. It contains input from a public transport vehicle driver. The data flow consists of the following data items each of which is defined in its own DDE:

ftd-emergency_request
+ ftd-information_updates
+ ftd-request_batch_mode_data_transfer
+ ftd-fare_transaction_mode_set_up.

From_Transit_Fleet_Manager

This data flow is sent from the public transport fleet manager to the Manage Transit function and contains various inputs. Some are initiated by the manager, whilst others result from prompts to input data which is additional to that already received by processes within the function. The data flow consists of the following data items each of which is defined in its own DDE:

ftfm-approved_corrections
+ ftfm-coordination_data
+ ftfm-initiate_service_updates
+ ftfm-passenger_loading_updates
+ ftfm-planning_parameters
+ ftfm-planning_parameters_update_request
+ ftfm-response_parameters
+ ftfm-request_response_parameter_output + ftfm-request_transit_vehicle_data
+ ftfm-technician_information_request
+ ftfm-technician_information_updates
+ ftfm-transit_display_update_request
+ ftfm-transit_driver_information_request + ftfm-transit_driver_information_updates + ftfm-transit_driver_route_preferences
+ ftfm-transit_services_output_request
+ ftfm-transit_vehicle_maintenance_information_request
+ ftfm-transit_vehicle_maintenance_specs.

From_Transit_Maintenance_Personnel

This data flow is sent from public transport vehicle maintenance personnel to the Manage Transit function. It contains the following item of data which is defined in its own DDE:

ftmp-transit_vehicle_maintenance_updates.

From_Transit_System_Operators

This data flow is sent by the public transport system operator to the Manage Transit function. It contains acknowledgment of potential incidents, security actions, a request for output of public transport 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:

ftso-emergency_request_acknowledge
+ ftso-fare_updates
+ ftso-media_parameter_request
+ ftso-media_parameter_updates
+ ftso-security_action
+ ftso-request_fare_output
+ ftso-video_camera_action_request
+ ftso-archive_commands.

From_Transit_User

This data flow is sent to the Manage Transit function and contains inputs from the traveller who is at the moment a commuter. It consists of the following data items each of which is defined in its own DDE:

ftu-destination_at_roadside
+ ftu-destination_on_vehicle
+ ftu-emergency_request
+ ftu-other_services_roadside_request + ftu-other_services_vehicle_request + ftu-request_advisory_information + ftu-transit_information_request
+ ftu-transit_user_roadside_image + ftu-transit_user_vehicle_image.

From_Transit_Vehicle

This data flow is sent from the public transport vehicle to the Manage Transit function and contains data that has been collected on-board the vehicle. It consists of the following data items each of which is defined in its own DDE:

ftv-availability
+ ftv-vehicle_maintenance_data
+ ftv-vehicle_trip_data.

From_Traveller

This data flow is sent from the traveller to the Provide Driver and Traveller Services function and contains requests for information or guidance from a traveller, either at a kiosk or using a personal device. It consists of the following data items each of which is defined in its own DDE:

ft-extra_trip_data
+ ft-guidance_data
+ ft-guidance_map_update_request
+ ft-guidance_request
+ ft-guidance_route_accepted
+ ft-remote_emergency_request
+ ft-personal_emergency_request
+ ft-personal_extra_trip_data
+ ft-personal_map_display_update_request
+ ft-personal_trip_planning_requests
+ ft-trip_planning_requests.

From_Vehicle_Characteristics

This data flow is sent from the vehicle characteristics terminator. It represents the presence of a vehicle near a sensor. This may allow the sensor to create an output that can be used to identify a particular vehicle and its characteristics, such as the number of wheels, size, pollution parameters, etc., for 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 toll and parking lot charge violators. This data flow consists of the following items each of which is defined in its own DDE:

fvc-vehicle_characteristics
+ fvc-vehicle_presence.

From_Wayside_Equipment

This data flow represents information received by HRI from railroad maintained and operated railside 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 National Meteorlogical Service terminator and is sent to the Provide Driver and Traveller Services and Manage Traffic functions. The National Meteorlogical Service may also provide data to the Manage Archived Data function. The current and predicted weather data items will 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-current_weather
+ fws-predicted_weather
+ fws-weather_archive_data.

From_Yellow_Pages_Service_Providers

This data is sent from the Information and Service Providers to the Provide Driver and Traveller Services function. It contains the following data items each of which is defined in its own DDE:

fypsp-request_provider_registration
+ fypsp-provider_profile_update
+ fypsp-transaction_confirmation
+ fypsp-yellow_pages_data.

fsa_area_image

This data flow is sent from the secure area environment to the Manage Transit function and represents information about conditions in a secure area environment such as that found in a public transport network. Also represented is information about visual and audible characteristics of travellers and surrounding areas that are monitored with security surveillance systems. This data is sensed/detected by sensors contained in the Manage Transit function, and includes video, audio, and other image data. The data may have been obtained from closed circuit television (cctv), or other, systems that are monitoring activity in the public transport operational network, i.e. not on-board a public transport vehicle, but at a public transport stop, or in such things as a modal interchange facility, public transport depot, etc. The data can be used for incident detection, etc., using automatic analysis techniques.

ft_extra_trip_data

This data flow is sent from the traveller to the Provide Driver and Traveller Services function and contains analog data from which sensors can determine extra trip request data to supplement that already input by a traveller 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 traveller to the Provide Driver and Traveller Services function and contains data to be used in preparing the request for a traveller route.

ft_guidance_map_update_request

This data flow is sent from the traveller to the Provide Driver and Traveller Services function and contains a request for an update of the digitized map data used to provide on-line traveller guidance.

ft_guidance_request

This data flow is sent from the traveller to the Provide Driver and Traveller Services function. It contains the a request to provide on-line traveller guidance and specifies a choice of the type of preferred guidance, i.e. infrastructure based dynamic, or totally autonomous. The traveller 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 Traveller Services function. It contains acceptance of the route that has been generated in response to a previous request from the traveller for on-line guidance. Guidance will not begin until the acceptance has been received.

ft_personal_emergency_request

This data flow is sent from the traveller to the Provide Driver and Traveller Services function. It contains analog data from which sensors can determine that a traveller has an emergency situation that has given rise to an input from the traveller'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 traveller to the Provide Driver and Traveller Services function and contains analog data from which sensors can determine extra trip request data to supplement that already input by a traveller 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 traveller to the Provide Driver and Traveller Services function and contains analog input from which may be determined a traveller's request for the update of the digitized map data used as the background to traffic, trip amd 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 traveller to the Provide Driver and Traveller Services function and contains analog inputs from which a traveller's trip request 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 traveller to the Provide Driver and Traveller Services function. It contains image data from which sensors can determine that a traveller has an emergency situation that has given rise to an input from a kiosk or other device. This data is used by a process at the kiosk or other device to determine the nature of the emergency.

ft_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.

ft_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.

ft_trip_planning_requests
This data flow is sent from the traveller to the Provide Driver and Traveller Services function and contains analog inputs from which a traveller'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.

ft_vehicle_pollutant_levels
This data flow is used within the Manage Traffic function. It contains analog data from which sensors within ITS can determine the actual levels of various atmospheric pollutants, such as nitrous oxide, sulfur dioxide, hydrocarbons, carbon monoxide and ozone, that are being produced by particular passing vehicles.

fta_archive_commands
This data flow is sent from the toll administrator to the Provide Electronic Payment Services function and contains data administration commands that control the archival of toll 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.

fta_confirm_advanced_toll
This data flow is sent from the toll 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.

fta_toll_price_changes_response
This data flow is sent to the Provide Electronic Payment Services function by the toll 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.

fta_toll_price_data
This data flow is sent from the toll administrator to the Provide Electronic Payment Services function and contains updates to the current toll prices.

ftd_emergency_request
This data flow is sent by the public transport driver to the Manage Transit function. It contains notification that the driver needs help because an emergency has occurred on-board or near a public transport vehicle.

ftd_fare_transaction_mode_set_up
This data flow is sent from the public transport driver to the Manage Transit function. It contains the mode in which the public transport fare transaction processing on-board the public transport 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).

ftd_information_updates
This data flow is sent from the public transport driver to the Manage Transit function. It contains information from individual public transport drivers about their previous work hours and vacations, etc. It is used to assess a driver's eligibility for future work assignments.

ftd_request_batch_mode_data_transfer
This data flow is sent from the public transport driver to the Manage Transit function. It contains a request that the current contents of the store of public transport fare transactions be transferred to processes in the Provide Electronic Payment Services function for further

ftfm_approved_corrections
This data flow is sent from the public transport fleet manager to the Manage Transit function and contains the public transport fleet manager's approval for changes to public transport schedules that will bring one or more public transport vehicles back to their schedules.

ftfm_coordination_data
This data flow is sent from the public transport fleet manager to the Manage transit function and contains an acknowledgment of the previous request for action plus incident coordination and response information.

ftfm_initiate_service_updates
This data flow is sent from the public transport fleet manager to the Manage Transit function and indicates that the public transport fleet manager wants the public transport services to be re-processed because changes have occurred to the parameters which govern their calculation.

ftfm_passenger_loading_updates
This data flow is sent from the public transport fleet manager to the Manage Transit function and contains an update to the passenger (commuter) loading data as a result of a miss-match being found in the collected data.

ftfm_planning_parameters
This data flow is sent from the public transport fleet manager to the Manage Transit function and contains planning parameters used to calculate new public transport schedules.

ftfm_planning_parameters_update_request
This data flow is sent from the public transport fleet manager to the Manage Transit function and contains a request for the current planning public transport service planning parameters to be output to the public transport fleet manager.

ftfm_request_response_parameter_output
This data flow is sent from the public transport fleet manager to the Manage Transit function and is used to output of the preplanned responses to incidents by and within the public transport operations area.

ftfm_request_transit_vehicle_data
This data flow is sent from the public transport fleet manager to the Manage Transit function and contains a request for output of the current contents of the store of public transport vehicle operational data.

ftfm_response_parameters
This data flow is sent from the public transport fleet manager to the Manage Transit function and is used to provide data about planned responses to incidents by and within the public transport operations area.

ftfm_technician_information_request
This data flow is sent from the public transport fleet manager to the Manage Transit function and is used to request information about public transport

maintenance technicians.

ftfm_technician_information_updates
This data flow is sent from the public transport fleet manager and is used to provide updates to the information held within the Manage Transit function about public transport technicians.

ftfm_transit_display_update_request
This data flow is sent from the public transport fleet manager to 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 public transport services data requested by the public transport fleet manager.

ftfm_transit_driver_information_request
This data flow is sent from the public transport fleet manager to the Manage Transit function and contains a request for the output of the consideration data about one or more public transport drivers.

ftfm_transit_driver_information_updates
This data flow is sent from the public transport fleet manager to the Manage Transit function and contains an update of the consideration data for a particular public transport driver.

ftfm_transit_driver_route_preferences
This data flow is sent from the public transport fleet manager to the Manage Transit function and is used to provide information about the preferences that public transport drivers have about working over certain public transport routes.

ftfm_transit_services_output_request
This data flow is sent from the public transport fleet manager to the Manage Transit function and is used to request output of the current public transport services. This data is that produced by the public transport route and schedule generation processes in the function.

ftfm_transit_vehicle_maintenance_information_request
This data flow is sent from the public transport fleet manager to the Manage transit function and contains a request for information about the maintenance status of an individual public transport vehicle.

ftfm_transit_vehicle_maintenance_specs
This data flow is sent from the public transport fleet manager to the Manage transit function and contains a new or revised public transport vehicle maintenance specification. This will be loaded into the store of public transport vehicle operations data.

ftmp_transit_vehicle_maintenance_updates
This data flow is sent from public transport maintenance personnel to the Manage Transit function and is used to provide updates to the maintenance information being held within the function about individual public transport vehicles.

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_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

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_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 cover things such as 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_indicator_fault_data_input
This data flow is sent to the Manage Traffic function from the traffic operations personnel and contains new data for loading into the store of current indicator faults.

ftop_indicator_fault_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 contents of the store of current indicator faults.

ftop_indicator_fault_data_update
This data flow is sent to the Manage Traffic function from the traffic operations personnel and is an update data in the store of current indicator faults.

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_pollution_data_information_request
This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains a request for a display of pollution reference or current pollution state data.

ftop_pollution_parameter_updates
This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains a request for specified pollution reference data values to be updated to those provided.

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_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_sensor_fault_data_input
This data flow is sent to the Manage Traffic function from the traffic operations personnel and contains new data for loading into the store of current sensor
faults.

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_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

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.

ftso_archive_commands
This data flow is sent from the public transport system operator to the Manage Transit function and contains data administration commands that the Manage Transit function will use to control the archival of public transport 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

ftso_emergency_request_acknowledge
This data flow is sent by the public transport operator to the Manage Transit function and is used to acknowledge the receipt of an emergency request previously sent by the Manage Transit function.

ftso_fare_updates
This data flow is sent from the public transport system operator to the Provide Electronic Payment Services function. It contains data identifying the public transport 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 public transport fares.

ftso_media_parameter_request
This data flow is sent by the public transport system operator 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 public transport network that is automatically sent to the media.

ftso_media_parameter_updates
This data flow is sent by the public transport system operator to the Manage Transit function and contains update to the parameters used to control the style and content of information about incidents affecting the public transport network that is automatically sent to the

ftso_request_fare_output
This data flow is sent from the public transport system operator to the Provide Electronic Payment Services function. It contains a request for output of the current public transport fares held in the local data store.

ftso_security_action
This data flow is sent by the public transport system operator to the Manage Transit function and contains details of the action needed in response to a previously identified security problem.

ftso_video_camera_action_request
This data flow is sent by the public transport system operator to the Manage Transit function and contains a request for the change of operating parameters for a closed circuit television (cctv) system located in the secure area environment. These parameters may cover things such as camera pan, tilt, and zoom, plus other picture controls.

ftu_destination_at_roadside
This data flow is sent by the commuter 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 public transport stop.

ftu_destination_on_vehicle
This data flow is sent by the commuter 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 public transport vehicle.

ftu_emergency_request
This data flow is sent from the commuter to the Manage transit function and is used to identify that an emergency of some type has been seen, and may involve the commuter personally.

ftu_other_services_roadside_request
This data flow is sent by the commuter to the Manage Transit function to specify other non-public transport services that are needed by a commuter at the roadside, i.e. a public transport stop.

ftu_other_services_vehicle_request
This data flow is sent by the commuter to the Manage Transit function to specify other non-public transport services that are needed by a commuter on-board a public transport vehicle.

ftu_request_advisory_information
This data flow is sent from the traveller to the Provide Driver and Traveller Services function and contains data that enables a display on-board a public transport vehicle that will be capable of showing public transport, yellow pages information and other traffic and travel

ftu_service_request
This data flow contains a request from a commuter for a trip plan that may involves transfer from one public transport route to another route of the same public transport agency, or to a route provided by some other public transport or multimodal transportation provider.

ftu_transit_information_request
This data flow is sent by the commuter to the Manage Transit functions to request information on public transport services from a kiosk or other information point.

ftu_transit_user_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 commuter when a fare transaction violation has been detected at the roadside. The size estimate represents a digitized equivalent of the analog image.

ftu_transit_user_vehicle_image
This data flow contains analog information from which sensors can produce an image of the commuter when a fare transaction violation has been detected on-board the vehicle.

ftv_availability
This data flow is sent from the public transport vehicle to the Manage Transit function. It defines the availability of a public transport vehicle in terms of its identity, type, and passenger capacity.

ftv_vehicle_maintenance_data
This data flow is sent from the public transport vehicle to the Manage Transit function. It contains analog data from which various aspects of the public transport vehicle operation can be determined for future maintenance purposes.

ftv_vehicle_measures_data
This data flow is sent from the maintenance vehicle to the Manage O&M function. It contains analog data from which various aspects of the maintenance vehicle operation can be determined so that its performance on the current trip can be analyzed.

ftv_vehicle_trip_data
This data flow is sent from the public transport vehicle to the Manage Transit function. It contains analog data from which various aspects of the public transport vehicle operation can be determined so that its performance on the current trip can be analyzed.

fused_environment_data
This data flow contains a fusion of environmental sensor data, road condition sensor data, Malaysian Meteorological data and Meteorological Service Provider data.

fused_environmental_data_for_road_forcasting
This data flow contains a fusion of environmental sensor data, road condition sensor data, Malaysian Meteorological data and Meteorological Service Provider data.

fvc_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 the number of wheels, size, pollution parameters, etc., for 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 toll and parking lot charge violators.

fvc_vehicle_presence
This data flow is sent from the vehicle characteristics terminator. It represents the presence of a vehicle near a sensor.

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

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
This data flow is sent to the Manage Traffic function and the Provide Driver and Traveller Services functions. It contains details of the current weather conditions, e.g. temperature, pressure, wind speed, wind direction, humidity, precipitation, visibility, light

fws_predicted_weather
This data flow is sent to the Manage Traffic and Provide Driver and Traveller Services functions. It contains details of the predicted weather conditions, e.g. temperature, pressure, wind speed, wind direction, humidity, precipitation, visibility, light

fws_weather_archive_data
This data flow from the National Meteorlogical Service terminator to the Manage Archived Data function contains a catalog and details of 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:

weather_archive_catalog
+ weather_data_for_archive.

fypsp_provider_profile_update
This data flow is used to update the current yellow pages 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.

fypsp_request_provider_registration
This data flow is sent to the Provide Driver and Traveller Services function from the information and service provider to request registration as a provider of yellow pages data for another process within this function. The data flow includes details of the provider, credit identity of the provider, geographic area for which data can be provided and available yellow pages services.

fypsp_transaction_confirmation
This data flow is sent by the information and service provider to the Provide Driver and Traveller Services function and contains confirmation that a transaction requested by a traveller has (or has not) successfully taken place.

fypsp_yellow_pages_data
This data flow is sent from the information and services provider to the Provide Driver and Traveller Services function. It provides information on yellow pages services in three forms comprising that of general interest, more specific items and

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 commuter currently trying to pay a public transport fare be obtained as the payment transaction has been found to be illegal. If the transaction is at the roadside the identity of the public transport 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
+ transit_user_category
+ transit_vehicle_fare_collection_method
+ transit_vehicle_identity

get_other_route

This data flow is used within the Provide Driver and Traveller Services function to enable the selection of routes that only involve modes other than those using vehicles or public transport 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

get_parking_lot_tag_violator_image

This data flow is used within the Provide Electronic Payment Services function and contains a flag which if set to one (1) requests that the image of the vehicle currently entering a parking lot be obtained as its tag 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_tag_violator_image

This data flow is used within the Provide Electronic Payment Services function and contains a flag which if set to one (1) requests that the image of the vehicle currently entering a toll plaza be obtained as its tag cannot be correctly read.

get_transit_route

This data flow is used within the Provide Driver and Traveller Services function. It contains data that enables the selection of a route using only public transport services, as part of a traveller'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 Traveller Services function to enable a route to be selected that only involve the use of vehicles, excluding public transport 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_ahs_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 Public transport 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

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 Traveller 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_request.

guidance_data_for_archive

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide data to the data archive about the vehicle routes which are currently being used by vehicles 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:

route_guidance_data_for_archive
+ vehicle_guidance_probe_data_for_archive.

guidance_data_for_archive_attributes

This data flow is used within the Provide Driver and Traveller 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.

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

handicap_access_information

This data flow is used within the Provide Traveller Services function to indicate the handicap access level for a business, event, or any other establishment.

har_data_for_highways

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 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:

har_identity
+ har_program
+ har_management_data.

har_data_for_roads

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 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_identity
+ har_program

+ har_management_data.

har_fault
This data flow contains an indication of a fault in the Highway Advisory Radio device. This could be a power failure, or a communications failure.

har_fault_data_for_highways
This data flow contains an indication of a fault in the Highway Advisory Radio device. It consists of the following data items each of which is defined in its own DDE:

har_fault+
har_identity.

har_fault_data_for_roads
This data flow contains an indication of a fault in the Highway Advisory Radio device. It consists of the following data items each of which is defined in its own DDE:

har_fault+
har_identity.

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 contains the current status of the Highway Advisory Radio. This status included an indication of the current program being broadcast and an indication of the space available for storing messages/ programs on the device.

har_status_for_highways
This data flow contains the Highway Advisory Radio status for HARs, 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:

har_status+

har_status_for_roads
This data flow 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.

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 travelling is involved in an

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.

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, measured in inches up to 255) as computed from on-board sensors.

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_device_control_for_maintenance
This data flow from the Control Roadway Maintenance Devices function contains the data from which devices at the roadside will affect the display of traffic signals and other indicators to the travellers. This data flow allows the Manage O&M function to control traffic patterns in and around work zones 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.

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}

highway_information_maintenance_data
This data flow from the Control Roadway Maintenance Devices function contains the data to be used alongside freeways for highway advisory radio, dynamic message signs or other means of information dissemination to travellers around a work zone. It consists of the following items each of which is defined in its own DDE:

dms_data_for_highways
+ har_data_for_highways.

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

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) and can consist of up to fifteen (15) highway sign sequences. The data flow consists of the following data items each of which is defined in its own DDE:

highway_sign_plan_purpose
+ 1{highway_sign_sequence_data}15
+ 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 and includes an alphanumeric code which defines the purpose of highway sign plans. These codes shall include, but not be limited to data such as close highway 401 at junction 157 northbound, set 65 km/h speed limit on highway 400 southbound (may apply anywhere), close the right two lanes on highway 407 from junction 133

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 km/h could be preceded by warnings that it starts 'x' metres 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

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. These codes shall describe but not be limited to close one lane, close right-hand (nearside) lane, close centre 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 km/h speed limit (from higher limit), set 50 km/h speed limit (from higher limit), set 40 km/h 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 Traveller Services function and contains historical data about the non-vehicle portion(s) of routes that have been requested by travellers. 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),r 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_travellers}
+ 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_nitrous_oxide_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_nitrous_oxide_pollution + current_sulfur_dioxide_pollution + current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution + current_particulate_pollution
+ current_roadside_pollution_location.

historical_processed_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
+ roadway_environment_conditions
+ strategy_data
+ link_state_data
+ hri_state_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

historical_vehicle_smart_probe_stored_data

This data flow is used within the Manage Traffic function. It contains the historical processed vehicle smart probe data collected from roadside units. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{vehicle_smart_probe_data_for_storage}.

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 Centre (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_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.

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_device_control
This data flow controls the state of traffic control devices at a local HRI by passing the required control actions to the Provide Device Control process in Traffic Management.

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.

indicator_sign_control_data_for_hri

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_guidance_for_beacon_message
This data flow is used to control which message is to be broadcast to drivers approaching an HRI.

hri_guidance_for_dms
This data flow is used to control which message is to be displayed on a dynamic message sign (dms) 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 nofication 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 railside 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_roadway_message
+ train_sense_data
+ hri_device_control.

hri_roadway_message
This data flow contains the data and instructions for the dissemination of hri messages by the normal in-vehicle signing or DMS mechanisms and/or local wireless broadcasts, all controlled by other ITS traffic management or traveller service processes. It consists of the following data items each of

which is defined in its own DDE:

hri_guidance_for_dms
+ hri_guidance_for_beacon_message.

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 represents the complete status of an HRI, including train situation, vehicle traffic, equipment health 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.

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 item which is defined in its own DDE:

hri_sensor_data.

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

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

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.

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,

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 Mapping Service 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 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_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_command_request

This data flow requests resources, provides commands for relay to other allied response agencies, and includes other requests that reflect local command of an evolving incident response.

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, traveller, etc.), the type of incident (this may affect how easy it is to detect), and the time at which the incident was detected.

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 centre (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
+ incident_video_image.

incident_data_flow
This data flow is used to transfer data between the Manage Emergency Services function and the Provide Driver and Traveller Services function. It contains the following items of data each of which is defined in its own DDE:

emergency_request_personal_traveller_acknowledge
+ emergency_request_driver_acknowledge
+ incident_information.

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 centres (TMC's) 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.

incident_data_request
This data flow is used to transfer data between the Provide Driver and Traveller Services function and the Manage Emergency Services function. It contains the following data items each of which is defined in its own DDE:

emergency_request_personal_traveller_details
+ emergency_request_driver_details
+ incident_information_request
+ vehicle_location_for_emergency_services.

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 passed from the Media. The data flow consists of the following items each of which is defined in its own DDE:

incident_location
+ incident_start_time
+ incident_duration
+ incident_severity
+ incident_type.

incident_details_request
This data flow is used by the Manage Traffic function to request details of incidents from the Manage Emergency Services function. It contains the following data items each of which is defined in its own DDE:

incident_type
+ incident_oldest_time.

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_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

incident_information
This data flow is sent from the Manage Emergency Services function to the Provide Driver and Traveller 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_information_request
This data flow is sent from the Provide Driver and Traveller Services function to the Manage Emergency Services function and is a request for information about incidents It contains the following data items each of which is defined in its own DDE:

incident_type
+ incident_oldest_time.

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_oldest_time

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. the time of the oldest, longest outstanding incident to be reported. The data flow consists of the following data item which is defined in its own DDE:

time.

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
+ current_incident_data_for_vehicle_signage
+ planned_event_data_for_vehicle_signage
+ incident_strategy_override
+ dms_updates.

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 public transport 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_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_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.

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 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_data
This data flow is sent from the Manage Emergency Vehicle function to the Manage Emergency Response function. It provides detailed incident information gathered by emergency response personnel 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_status_update.

incident_status_update
This data flow provides detailed incident information gathered by emergency response 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_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_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 located used to provide incident management information. These parameters may cover things such as camera pan, tilt, and zoom, plus other picture controls.

incidents_for_maintenance
This data flow is sent from the Process Traffic Data for Storage function to the Gather O&M Data function. It contains information about the incidents in the network served by the function. The data flow consists of the following data items each of which is defined in its own DDE:

current_incident_data
+ planned_event_data.

indicator_control_data
This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveller can be produced by indicators at the roadside on roads and highways served by the function. It consists of the following data items each of which is defined in its own DDE:

indicator_control_data_for_highways
+ indicator_control_data_for_roads
+ har_data_for_roads
+ har_data_for_highways
+ dms_data_for_roads
+ dms_data_for_highways.

indicator_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 traveller can be produced by indicators 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_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 traveller 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 traveller 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_junction_control_data
+ indicator_pedestrian_control_data.

indicator_control_monitoring_data

This data flow is used within the Manage Traffic function. It contains the actual data from which instructions to the driver and traveller can be produced by indicators at the roadside although in this case the data is used 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_monitoring_data_for_highways

indicator_control_monitoring_data_for_highways

This data flow is used within the Manage Traffic function. It contains the actual data from which instructions to the driver and traveller can be produced by indicators 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_highways.

indicator_control_monitoring_data_for_roads

This data flow is used within the Manage Traffic function. It contains the actual data from which instructions to the driver and traveller can be produced by indicators on the roads (surface streets) and at railroad grade crossings 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_roads
+ indicator_control_data_for_hri.

indicator_control_storage_data

This data flow is used within the Manage Traffic function to transfer indicator control data 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_highways.

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 traveller 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 traveller 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_current_fault_data
This data flow is used within the Manage Traffic function and contains details of all indicator faults that have been reported and are in the process of being cleared by the construction and maintenance organization for output to the traffic operations personnel. It consists of the following data items each of which is defined in its own DDE:

indicator_type
+ indicator_fault
+ indicator_fault_number.

indicator_current_fault_update
This data flow is used within the Manage Traffic function and contains details of the updates that the traffic operations personnel have provided for current indicator fault data stored locally. It consists of the following data items each of which is defined in its own DDE:

indicator_type
+ indicator_fault

indicator_current_faults_list
This data flow is used within the Manage Traffic function and contains details of all indicator faults that have been reported and are in the process of being cleared by the construction and maintenance organization. It consists of the following data items each of which is defined in its own DDE:

indicator_type
+ indicator_fault
+ indicator_fault_number.

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 travellers.

indicator_data_fault
This data flow is used within the Manage Traffic function to show that an indicator has developed a fault that means it is not operating correctly. 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:

indicator_data_fault_for_highways

indicator_data_fault_for_highways
This data flow is used within the Manage Traffic function to show that an indicator used on the highway has developed a fault that means it is not operating correctly. 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
+ list_size{indicator_type
+ indicator_fault}.

indicator_data_fault_for_roads
This data flow is used within the Manage Traffic function to show that an indicator at the roadway has developed a fault that means it is not operating correctly. 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
+ list_size{indicator_type
+ indicator_fault}.

indicator_fault
This data flow is used within the Manage Traffic function to define the type of fault that has been found in an indicator as it is not operating correctly.

indicator_fault_clearance_update
This data flow is used within the Manage Traffic function and contains details of an indicator fault that has been cleared by the construction and maintenance organization. It consists of the following data items each of which is defined in its own DDE:

indicator_fault_number.

indicator_fault_data
This data flow is used within the Manage Traffic function to show that an indicator has developed a fault that means it is not operating correctly. 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:

indicator_type
+ indicator_fault.

indicator_fault_number
This data flow is used within the Manage Traffic function and contains the number of an indicator fault. This number is used to reference the details of the fault that are stored within the Manage Traffic function.

indicator_fault_state
This data flow indicates the fault state of an indicator. It contains the indicator type (which includes its identity) and a fault code. It consists of the following data items each of which is defined in its own DDE:

indicator_type
+ indicator_fault.

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

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 travellers 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_highways}.

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 travellers on roads and highways. It consists of the following data items each of which is defined in its own DDE:

indicator_input_data_from_highways
+ indicator_input_data_from_roads
+ har_status_for_roads
+ har_status_for_highways
+ dms_status_for_highways
+ dms_status_for_roads.

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 travellers on freeways 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_roads

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 travellers 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_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_junction_control_data

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveller can be produced by indicators at junctions 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_junction_controls}.

indicator_junction_controls

This data flow contains the actual control data to be passed to an indicator at a road junction. 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 priority request for a public transport or emergency vehicle.

indicator_new_fault

This data flow is used within the Manage Traffic function and contains details of a new indicator fault that is to be reported to the operation and maintenance function. It consists of the following data items each of which is defined in its own DDE:

indicator_type
+ indicator_fault
+ indicator_fault_number.

indicator_new_fault_data

This data flow is used within the Manage Traffic function and contains details of the new indicator fault data that the traffic operations personnel have provided for local storage. These faults are assumed to be undetectable by any of the other facilities within the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

indicator_type
+ indicator_fault.

indicator_new_fault_update

This data flow is used within the Manage Traffic function and contains details of an indicator fault. It consists of the following data items each of which is defined in its own DDE:

indicator_type
+ indicator_fault.

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_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 traveller 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 traveller, 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_preemption_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 priority to the stream of traffic in which a public transport or emergency vehicle is travelling. This data flow is generated by a process that has received a priority request from either the Manage Transit or Manage Emergency Services functions.

indicator_preemption_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 priority to the stream of traffic in which a public transport or emergency vehicle is travelling. This data flow is generated by a process that has received a priority request from either the Manage Transit or Manage Emergency Services functions.

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 traveller 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 travellers. 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 travellers 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 travellers 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 identifys 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

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_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

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 travellers 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:

[lane_dms_controls
| parking_lot_dms_controls
| pollution_output_message
| dms_advisory_text].

indicator_sign_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 traveller can be produced by indicators at dynamic message (dms) and other types of signs 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_identity

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 traveller can be produced by indicators, dynamic message (dms), advisory beacons, 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

indicator_sign_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 traveller 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_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 mutlimodal crossing.

individual_transit_trip_plan

This data flow contains the portion of an individual's trip plan that can be provided by a Public transport system.

information_datapage

This data flow is used within some ITS functions and represents the quantity of data that would be contained on a page (US letter, 50 lines by 80 columns). The data will be provided as a string of characters (4000) and will be formatted as required by the

receiving process.

information_device_fault_status
This data flow is used to show any faults that have been found in roadside information dissemination equipment. This includes highway advisory radio, dynamic message signs, or in-vehicle signs. The data flow consists of the following data items each of which is defined in its own DDE:

har_fault_data_for_roads
+ har_fault_data_for_highways
+ vehicle_sign_data_output_fault.

information_for_media
This data flow contains information about the state of traffic and incidents in the geographic area requested by the Media. This information is a subset of the complete information available pertaining to those aspects of the network of interest to the Media.

information_on_container_release_status
Internal Flow.

infrastructure_data
This data store contains data about the infrastructure assets within a region. This information is maintained within the database of infrastructure data and disseminated upon request. This data item is made up of the following items each of which is defined in its own DDE:

asset_management_data + asset_management_plan + roadway_asset_status + sensor_fault_data_report + indicator_new_fault.

infrastructure_information
This data flow contains data about the infrastructure assets within a region. This information is maintained within the database of infrastructure data and disseminated upon request. This data item is made up of the following item which is defined in its own DDE:

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

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_chassis_monitoring_status
This data flow contains a status of the monitoring equipment on the intermodal chassis. It is part of a self testing feature that allows the driver, or fleet manager to know that the monitoring equipment is operating properly.

intermodal_chassis_status
This data flow contains an overal operational readiness status of the chassis. The data flow can contain a general status operation readiness indication such as 'green'/'red'. It also contains measures from the chassis systems, such as brakes, tires, and fasteners.

intermodal_chassis_status_request
This data flow contains a request for the operational status or chassis data from an intermodal chassis.

intermodal_consignment_request
Inernal Flow.

intermodal_container_dispatch_assignment
This data flow contains an assignment from the Fleet Manager to the commercial vehicle driver regarding the pickup or delivery of an intermodal container. The assignment would contain a description of the container contents (e.g. a manifest) the location of the container, and the intended destination, as well as any time constraints on the delivery or pickup.

intermodal_container_monitoring_status
This data flow contains the status of the monitoring equipment for the container, or for the cargo within the container. This is part of a self test system that will provide fault identification on the monitoring equipment.

intermodal_container_shipment_status
Internal Flow.

intermodal_container_status
This data flow contains both the status of the intermodal container as well as information associated with the cargo inside the container. The data flow consists of the following data items which are defined in their own DDEs:

cargo_data
+container_status.

intermodal_container_status_for_customer
Internal Flow.

intermodal_container_status_for_distribution
Internal Flow.

intermodal_container_status_for_fleet_manager
Internal Flow.

intermodal_container_status_for_other_shipper
Internal Flow.

intermodal_container_status_from_manager
Internal Flow.

intermodal_container_status_from_other_shipper
This data flow contains the status of an intermodal shipment obtained from an Other Intermodal FMS.

intermodal_container_status_request
This data flow contains a request for the operational status or container data from an intermodal container.

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.

intermodal_dispatch_assignment

This data flow contains dispatch instructions that will be sent to a driver relating to the pickup and delivery of an intermodal

intermodal_route

This data flow provides to th on-board systems a detailed route for the delivery or pickup of an intermodal container. The data flow consists of the following data items which are defined in their own DDEs:

route.

intermodal_terminal_operator_data

This data flow contains information for the Intermodal Terminal Operator regarding the status of various shipments arriving or departing from the Intermodal Terminal. The operator will receive information on container arrival, release (from customs or by the Other Intermodal FMS), and pickup.

intermodal_terminal_operator_inputs

This data flow contains data inputs from the Intermodal Terminal Operator that are used to manage the Intermodal Terminal Facility. This data would include information about container release status, in response to requests for information.

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

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, public transport 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 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.

kiosk_identity
This data flow is used by the Provide Driver and Traveller 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.

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_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 centre, the right of centre or the left of centre. 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_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_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 centre the steering and will be of a much smaller order of magnitude than the similar commands for changing lane.

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
+ list_size{link_identity
+ link_journey_time
+ link_queue_time}.

link_attributes
This data flow is used within the Provide Driver and Traveller 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. One bit is used to show the presence of each of the above conditions. If set to one (1) the bit indicates that the condition is
present of the link, and if set to zero (0) that it is not. A total of 16 bits are available to cover all the different conditions which may be applied to each of the links in the road and highway network.

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_data_for_guidance
This data flow is sent from the Manage Traffic function to the Provide Driver and Traveller 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
+ 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_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 Traveller 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 store is used within the Manage Traffic function and contains data about which links of the road network are covered by different TMC's. 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

link_identity_list

This data flow contains a list of the links in the road and freeway network that are covered by a public transport route segment. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{link_identity}.

link_ISP_identity

This data flow is used within the Provide Driver and Traveller 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_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 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 travelling 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 and occupancy 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

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 tag 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 journey 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_tag_data}.

link_time_calculation_read

This data flow is used within the Manage Traffic function and contains tag data read from the store. This store holds tag data previously read from vehicles which can be used with the current data to calculate link journey and queue times. The data flow contains the following data item which is defined in its own DDE:

link_time_calculation_data.

link_time_calculation_store

This data store is used within the Manage Traffic function and contains tag data that has previously been read from vehicles. This store holds tag data previously read from vehicles which can be used with the data read from vehicles in the future to calculate link journey and queue times. The data flow contains the following data item which is defined in its own DDE:

link_time_calculation_data.

link_time_calculation_write

This data flow is used within the Manage Traffic function and contains tag data being written to the store. This store holds tag data previously read from vehicles which can be used with the data read from vehicles in the future to calculate link journey 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 Traveller 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_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 is 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 response 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_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 Provide Traffic Surveillance 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_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_signal_violation_data

This data store contains a temporary cache of signal violation data that may have been collected at a particular roadside devise.
As the local policy may demand, this data store can be communicated periodically to review and classify the violations. This data consists of the video image and the time as well as the traffic signal settings at the time of the violation.

local_speed_violation_data

This data store contains a temporary cache of speed violation data that may have been collected at a particular roadside devise.
As the local policy may demand, this data store can be communicated periodically to review and classify the violations. This data consists of the video image and the time and speed of the vehicle as well as the posted speed limit at the time of the violation.

local_TMC_incidents_request

This data flow is exchanged with the other traffic centres (TMC's) terminator by the Manage Traffic function. It is used to request data about both current incidents and planned events from the local TMC. They will be entered into the other TMC's store of planned events and current incidents for use in determining responses to incidents that although outside its geographic or jurisdictional area(s) may affect its local traffic conditions. To enable either or both predicted and current incidents to be requested, the data flow consists of the following data items each of which is defined in its own DDE:

request_local_planned_events_data
+ request_local_current_incidents_data.

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.

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 (eg. the governors motorcade). The data flow is derived from the route that has been produced for the special vehicle.

hazmat_load_data
+ list_size
+ 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 is stored in hourly time intervals for each day over a rolling two week period, after which it is consolidated into a single smoothed or average set of data for normal weekday flows. The traffic management data is 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:

1{historical_stored_incident_data
+ historical_other_routes_use
+ o_d_matrix
+ historical_parking_lot_storage_data
+ historical_processed_data
+ historical_traffic_flow_state
+ historical_vehicle_smart_probe_stored_data
+ historical_wide_area_pollution_data}360
+ 1{historical_traffic_management_storage_data}18720.

long_term_data_for_retrieval
This data flow is used within the Manage Traffic function. It contains a subset of the long data stored by the function which will be used as the basis for traffic data that is sent to other functions. This subset shows the traffic conditions for the last six hours plus the smoothed or average flow over a weekday, giving a total of 31 entries or sets of data. The data flow consists of the
following data items each of which is defined in its own DDE:

1{current_incident_data
+ current_other_routes_use
+ parking_lot_storage_data
+ traffic_flow_state
+ vehicle_smart_probe_stored_data
+ wide_area_pollution_data}31.

maintenance_activity_data
This data flow is developed by the Manage Maintenance Activity function and contains information about the activities
associated with the operations and maintenance function. This data could include schedules for the maintenance vehicle fleets, status of requests for O&M services from the traffic management function, closure status, and other operations schedule or status

maintenance_activity_device_control
This data flow with the Manage O&M function is sent from the Schedule Maintenance Activity function to the Control Roadway Devices function. It may include control information to control the surveillance and signal systems at or around construction work zones or information to be displayed and output via roadside information devices.

maintenance_archive_data
This data flow from Manage Operations and Maintenance to Manage Archived Data contains the archive data stored in the
Manage Operations and Maintenance function along with the meta data describing the data as collected from field or operational

maintenance_archive_input
This data flow from the Manage Archived Data function to the Manage O&M 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:

maintenance_archive_request
+ maintenance_archive_status.

maintenance_archive_request
This data flow from the Manage Archived Data function contains the request for data collected and stored by the Manage O&M function. The request can be a request for a catalog of the data held by the function or a request for the data itself.

maintenance_archive_status
This data flow is sent from the Manage Archived Data function to the Manage O&M function. It is the status returned when O&M archive data is sent from the Manage O&M function to the Manage Archived Data function.

maintenance_data_for_archive
This data flow contains data gathered by the O&M function and includes such information as maintenance requests, schedule information, and status data. This data flow is made up of the following items each of which is defined in its own DDE:

maintenance_data_request
+ maintenance_link_data
+ maintenance_activity_data.

maintenance_data_for_dissemination
This data flow within the Manage O&M Data function is used to contain information that has been gather about the Operations and Maintenance function. Such information may include construction incidents, closure coordination data, maintenance

maintenance_data_request
This data flow contains a request for information that can be distributed to other ITS functions concerning the Operations and Maintenance function.

maintenance_incident_confirmation
This data flow is sent to the Manage O&M function from the Manage Incidents function to provide confirmation that work managed by the O&M function which has been recorded as a possible incident can take place at the requested time.

maintenance_incident_coordination
This data flow from the Manage Incidents function contains data necessary to coordinate closure times and durations between traffic management and O&M. This data flow consists of the following items each of which is defined in its own DDE:

maintenance_incident_confirmation
+ request_incident_change.

maintenance_incident_information
This data flow is sent from the Manage O&M function to the Manage Incidents function. It contains information about an incident that is about to be created by the proposed start of road maintenance activity which will affect the flow of traffic on one or more lanes of a road or highway. Information contained is location, number of lanes closed, and duration of closure. This may also include status of maintenance vehicle activities dispatched to respond to an incident.

maintenance_incident_input
This data flow from the Manage Incidents function contains a request for resources for maintenance to respond to an incident as well as incident coordination information. This data flow consists of the following items each of which is defined in its own DDE:

maintenance_resource_request

maintenance_incident_output
This data flow from the Manage O&M function to the Manage Incidents function contains incident information to notify and support the process of classifying and tracking all incidents in the network. This flow also contains the response to resource requests. This data flow is made up of the following items each of which is made up of its own DDE:

maintenance_resource_response
+ maintenance_incident_information.

maintenance_incidents_for_emergencies
This data flow contains incident information concerning maintenance activity in the region for the Manage Emergency function. This data may include work zone information, closure schedules, maintenance vehicle data, and overall activity status.

maintenance_link_data
This data flow contains static data about the traffic network for use by functions that manage operations and maintenance. It consists of the following data items each of which is defined in its own DDE:

link_data
+ roadway_characteristics.

maintenance_resource_request
This data flow is used to request traffic management resources to include temporary signs, cones, and other assets that can be used to divert traffic, create detours, and otherwise mange traffic at the incident scene. It also includes requests for any other assets that may be needed to support incident clearance.

maintenance_resource_response
This data flow is sent to the Manage Incidents function from the Manage O&M function to provide the status of the requested resources to better manage an area around an incident.

maintenance_status_for_driver
This data flow contains information from the On-board Maintenance Systems function for the Maintenance Vehicle Driver Interface. This data may include status or warning indicators of the on-board systems as well as reports and commands passed from other O&M functions.

maintenance_status_for_transit
This data flow contains information about road closures, detours, and traffic restriction information caused by O&M activities that may affect public transport operations within the region.

maintenance_status_for_travellers
This data flow contains incident information concerning maintenance activity in the region as well as information about the infrastructure assets being mananged to be used by for traveller information services. This may include work zone information, closure schedules, maintenance vehicle data, and overall activity status.

maintenance_vehicle_activity_status
This data flow sent from the function to Manage and Control On-board Maintenance Systems contains information and measures concerning the activity of the maintenance vehicle. This may include whether a particular activity is in-progress, complete, or

maintenance_vehicle_dispatch
This data flow from the Schedule Maintenance Activity function to the function to Manage and Control On-board Maintenace Systems contains the dispatch information to deploy a maintenance vehicle. This may include the location and routing
information or the type of activity involved.

maintenance_vehicle_operator_controls
This data flow from the Manage Maintenance Driver Interface contains control data and status requests from the driver of a maintenance vehicle to control the on-board systems.

maintenance_vehicle_status
This data flow is used to notify the Manage Traffic function concerning the location and status of the maintenance vehicles
operating within the region. This data includes information about the dispatching and deployment of the maintenance vehicle assets with an emphasis on the status of the vehicle equipment such as location, fuel status, etc.

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 Mapping 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

map_archive_catalog_request
This data flow from the Manage Archived Data function to the Mapping 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.

map_archive_data_request
This data flow from the Manage Archived Data function to the Mapping 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.

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 Mapping Service 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_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 for use as
background to displays of data about incidents and emergencies. The map data will enable incidents and emergencies to be shown in their location context thus improve 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 store 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_for_general_use
This data store is used by processes in the Provide Driver and Traveller Services functions as a source of digitized data on the physical layout of the road and highway network. This is provided by the Mapping Service 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_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 traffic 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 Traveller Services function as a source of digitized data on the physical layout of the road and highway network. This is provided by the Mapping Service 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_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 public transport routes and as the background to displays of data about public transport services requested by the public transport fleet manager. The map data will enable the services to be shown in their location context thus improve the understanding by the public transport fleet manager. The data store consists of the following data item which is defined in its own DDE:

map_data_store_contents.

map_data_for_traveller_displays

This data store is used in the Manage Traveller Information facility within the Provide Driver and Traveller Services function. It contains digitized map data for use as background to displays of trip information requested by the traveller 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 travellers 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_traveller_personal_displays

This data store is used in the Manage Traveller Information facility within the Provide Driver and Traveller Services function. It contains digitized map data for use as background to displays of trip information requested by the traveller 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 travellers to understand it more easily. It consists of the following data item which is defined in its own DDE:

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

map_transit_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 maps of the public transport 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.

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 that has been classified as Mayday data to the Identify Emergencies from Inputs function 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
+ mayday_vehicle_tracking
+ mayday_agency_ID.

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}.

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

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.

medical_facility_data

This data flow within the Coordinate Disaster Response function contains information about the type of medical facilities in an area and their availability.

medical_facility_disaster_request

This data flow contains a request for information concerning the availability and type of service provided by medical facilities in the area served by the function. This request is generated to support the Disaster Command Authority.

medical_facility_disaster_response

This data flow within the Coordinate Disaster Response function contains information about the type of medical facilities in an area and their availability. This data flow is sent in reponse to requests from the DCA.

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.

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 using the associated character codes and may be used in any trip request. The data that the codes describe may include but are not limited to own private car, part of public public transport services, part of public public transport 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,

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

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_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_service_arrival_time

This data flow is used within the Provide Driver and Traveller Services function. It contains the time at which a multimodal service must arrive at the destination for this type of service within a traveller'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_confirm

This data flow is used within the Provide Driver and Traveller Services function to confirm that a traveller 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:

traveller_identity

multimodal_service_confirmation

This data flow is used within the Provide Driver and Traveller Services function to confirm that a traveller'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
+ traveller_identity.

multimodal_service_data_request

This data flow is used within the Provide Driver and Traveller Services function. It contains a request for data about multimodal (non roadway) services that are available for use as part of a traveller'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,
and the arrival and departure times. 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_service_data_response

This data flow is used within the Provide Driver and Traveller Services function. It contains the response to the request for data about the multimodal (non roadway) service available that will suit a traveller'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.

multimodal_service_departure_time

This data flow is used within the Provide Driver and Traveller Services function. It contains the time at which a multimodal service must depart from the origin for this type of service within a traveller'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 Traveller Services function. It contains the destination of a multimodal service within a traveller'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 Traveller 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 traveller'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:

20{air_services_details}
+ 5{ferry_services_details}
+ 10{rail_services_details}.

multimodal_service_origin

This data flow is used within the Provide Driver and Traveller Services function. It contains the origin of a multimodal service within a traveller'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:

multimodal_service_possible_modes

This data flow contains the types of multimodal service that can be used as part of a traveller's proposed trip plan including airlines, ferry services, and heavy rail operations.

multimodal_services_details

This data flow is used within the Provide Driver and Traveller 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 traveller'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
+ rail_services_details.

navigable_map_traveller_update_cost

This data flow is sent from the Provide Driver and Traveller 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 traveller 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 Traveller 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.

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.

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_and_M_archive_data

This data store is used within the Manage O&M function and contains information that is to be archived by the Archive Data Management function. The data contains information about the maintenance assets, the infrastructure being maintained, and schedule or status data about O&M activities. It consists of the following data items each of which is defined in its own DDE:

maintenance_data_for_archive
+ asset_management_storage_data.

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

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.

onboard_environmental_data

Internal Flow.

onboard_environmental_sensor_control
Internal Flow.

onboard_environmental_sensor_status
Internal Flow.

onboard_sensor_control_by_driver
Internal Flow.

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_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
+ fcm-resource_response
+ tcm-resource_request.

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
+ disaster_advisory_data.

operator_schedule_inputs
This data flow contains the inputs provided by the Manage Maintenance Management Operator Interface function to support the Schedule Maintenance Activity function. This data may include such information as blocks of time for maintenance activities, new work orders, or manual intervention to system generated schedules.

operator_schedule_outputs
This data flow from the Schedule Maintenance Activity provides information to the Manage Maintenance Management Operator Interface function. This information may be in response for a request for information or to display the schedules generated by the system.

origin
This data flow is used within the Provide Driver and Traveller Services function. It defines the origin point for a trip request or a route to be used by a traveller 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, 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_for_highways
+ other_indicator_highway_requested_state
+ other_dms_data_for_highways.

other_control_data_for_roads

This data flow within the Manage Traffic function contains control data 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_har_data_for_roads
+ other_indicator_control_data_for_roads
+ other_dms_data_for_roads.

other_current_data

This data flow is used within the Manage Traffic function and contains 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_data
+ traffic_flow_state
+ traffic_management_storage_data + traffic_video_image_data
+ vehicle_smart_probe_stored_data + wide_area_pollution_data
+ sensor_output_data
+ stored_incident_data.

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 centres (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{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_for_highways
This data flow is used within the Manage Traffic function and contains DMS data about text strings of information to be output to drivers on freeways in the geographic and/or jurisdictional area(s) served by other traffic management functions. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_sign_control_data_for_highways.

other_dms_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 traveller 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:

indicator_sign_control_data_for_roads
+ indicator_sign_control_data_for_hri.

other_dms_status_data_for_roads
This data flow is within the Manage Traffic function and contains the Dynamic Message Sign status for sign control 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_sign_control_data_for_hri.

other_dms_status_for_highways
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:

indicator_sign_control_data_for_highways
+ dms_updates_for_highways.

other_har_data_for_highways
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_data_for_roads
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 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_identity+
har_program+
har_management_data.

other_har_status_for_highways

This data flow is used within the Manage Traffic function and contains the Highway Advisory Radio status for HARs, operating 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:

har_status+
har_identity.

other_har_status_for_roads

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.

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 traveller 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_junction_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 travellers 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_highways}.

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 travellers 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_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 centres (TMC's). 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 is stored in hourly time intervals for each day over a rolling two week period, after which it is

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:

1{historical_stored_incident_data
+ historical_other_routes_use
+ o_d_matrix
+ historical_parking_lot_storage_data
+ historical_processed_data
+ historical_traffic_flow_state
+ historical_vehicle_smart_probe_stored_data
+ historical_wide_area_pollution_data}360
+ 1{historical_traffic_management_storage_data}18720.

other_modes_routes
This data store is used within the Provide Driver and Traveller Services function and contains details of all non-vehicle and non-public transport routes which are currently in use by travellers.

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_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 centres (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_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 traveller can be produced by indicators at the roadside on freeways in the geographic and/or jurisdictional area(s) served by the function. It consists of data received from roadside surveillance devices adjacent to the local traffic control and display devices.

other_roadway_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 traveller can be produced by indicators at the roadside on streets in the geographic and/or jurisdictional area(s) served by the function. It consists of data received from roadside surveillance devices adjacent to the local traffic control and display devices.

other_roadway_warning_data
This data flow is used within the Manage Traffic function and contains the actual data from which warnings to the driver and traveller can be produced by indicators at the roadside on freeways in the geographic and/or jurisdictional area(s) served by the function. This data comes from surveillance functions adjacent to the local device and is useful for applications that are

other_route
This data flow is used within the Provide Driver and Traveller Services function. It is a special form of 'route' which uses modes of transport other than vehicles or public transport 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 Traveller Services function. It contains route segment data obtained from a similar function in another ITS Centre covering a separate geographic area. It consists of the following data item which is defined in its own DDE:

route_segment_details.

other_services_data

This data flow is used within the Manage Transit and Provide Driver and Traveller Services function and contains details of the other (yellow pages) services requested by a traveller or commuter.

other_services_payment_confirm

This data flow is used within the Provide Electronic Payment Services and Provide Driver and Traveller Services functions. It is a flag which if set to one (1) indicates that payment for a traveller's confirmed use of other (yellow pages) services has been completed successfully, but if set to zero (0) 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 commuter's request from the roadside, i.e. a public transport stop, for other (yellow pages) services. It consists of the following data items each of which is defined in its own DDE :

traveller_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 commuter's request from the roadside, i.e. a public transport stop, for other (yellow pages) services. It consists of the following data items each of which is defined in its own DDE :

traveller_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 commuter's request from a public transport vehicle for other (yellow pages) services. It consists of the following data items each of which is defined in its own DDE :

traveller_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 commuter's request from a public transport vehicle for other (yellow pages) services. It consists of the following data items each of which is defined in its own DDE :

traveller_identity
+ credit_identity
+ other_services_data.

other_status_for_highways

This data flow is used within the Manage Traffic funcation and contains the status for HARs, DMS, and 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_har_status_for_highways
+ other_indicator_input_data_from_highways

+ other_dms_status_for_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_har_status_for_roads
+ other_indicator_input_state_for_roads
+ other_dms_status_data_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_type
+ permit_route_plan
+ permit_traffic_controls.

other_TMC_data_request

This data flow is exchanged with the other traffic centres (TMC's) terminator by the Manage Traffic function. It is used to request traffic data from another TMC for use by the local TMC is determining its traffic control strategies.

other_TMC_emergency_data

This data flow is used within the Manage Traffic function and contains the portion of a strategy that gives priority 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 priority measures to give the emergency vehicles
priority 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_incidents_request

This data flow is exchanged with the other traffic centres (TMC's) terminator by the Manage Traffic function. It is used to
request data about both current incidents and planned events from another TMC. They will be entered into the local TMC's store of predicted and current incidents for use in determining responses to incidents that although outside its geographic or
jurisdictional area(s) may affect local traffic conditions. To enable either or both planned events and current incidents to be
requested, the data flow consists of the following data items each of which is defined in its own DDE:

request_other_planned_events_data
+ request_other_current_incidents_data.

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_traffic_centre_data

This store is used within the Manage Traffic function and contains data that has been obtained from other Traffic Management Centres (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_TRM_real_time_data
This data flow contains real time public transport schedule data for use in coordinating connection protection for routes that intersect the routes of another public transport agency.

other_TRM_service_data
This data flow is used within the Manage Transit function and contains the raw public transport schedule and route data received from an adjacent public transport 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 traveller.

override_lane_hold
This data flow is used within the Provide Vehicle Control and Monitoring function and indicates that lane holding must be suspended whilst 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.

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 traveller 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 traveller does not confirm the use of the service within this time frame, the details will no longer be valid, and the traveller 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 store 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

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 traveller 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_interstate
+ constraint_on_urban

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 traveller's final destination, since the remainder of the trip may be completed by other means, e.g. regular public

paratransit_personal_schedule
This data flow is sent from the Manage Transit function to the Provide Driver and Traveller Services function. It consists of the following data items each of which is defined in its own DDE:

paratransit_service_details
+ paratransit_service_cost
+ traveller_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 traveller. The time at which the traveller 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 traveller. 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 Traveller 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 traveller's request for paratransit services. It consists of the following data items each of which is defined in its own DDE:

paratransit_personal_schedule
+ traveller_identity.

paratransit_route_confirm
This data flow is used within the Provide Driver and Traveller Services function and is the confirmation that the response to a previous request from a travellers seeking on-line guidance to be given access to paratransit services is acceptable to the traveller.

paratransit_service_details

paratransit_route_request
This data flow is used within the Provide Driver and Traveller Services function to enable travellers 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:

traveller_identity
+ trip_request.

paratransit_route_response
This data flow is used within the Provide Driver and Traveller Services function and is the response to the request from a travellers 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
+ traveller_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 traveller 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

paratransit_service_confirmation
This data flow is sent by the Provide Driver and Traveller Services function to the Manage Transit function to confirm that the traveller 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

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

traveller_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 travellers. It consists of the following data items each of which is defined in its own DDE:

traveller_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 public transport route and schedule generation processes. It contains the following data item which is defined in its own DDE:

paratransit_service_details.

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 public transport 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 store is used within the Manage Transit function to hold data about paratransit services as they are different from normal public transport 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
+ traveller_identity.

paratransit_services_for_transit_drivers
This data flow is used within the Manage Transit function to provide data about a confirmed paratransit service to a public transport driver.

transit_schedules
+ transit_route

paratransit_transit_driver_instructions
This data flow is used within the Manage Transit function and contains the instructions for the public transport driver to follow in order that a paratransit service can be executed. The instructions will contain such things as pick-up points, traveller identities, drop off points, etc. The driver can obtain actual route guidance through the on-line vehicle guidance facility available from the Provide Driver and Traveller Services function.

paratransit_transit_vehicle_availability
This data flow is used within the Manage Transit function and contains the current availability of a public transport vehicle for paratransit services. This availability has been computed from processing the inputs from on-board sensors within the public transport vehicle.

paratransit_trip_request
This data flow is sent from the Provide Driver and Traveller 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:

traveller_identity
+ origin
+ destination
+ departure_time
+ desired_arrival_time
+ preferences
+ paratransit_constraints.

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_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

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 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_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 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_guidance_for_dms

This data flow is used within the Manage Traffic function. It contains the dynamic message sign (dms) states that will be used to implement the desired traffic control strategy at the parking lots served by the function. This data may be used to guide vehicles towards those parking lots where spaces are currently available or to show which lots have been closed, i.e. are not currently in use. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_list
+ 1{parking_lot_dms_controls}list_size.

parking_input_data

This data flow is used within the Manage Transit function to provide data from other parking lot systems. This data may take the form of the current parking lot occupancy or its state, e.g. full, spaces, closed, etc.

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. It also 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 traveller 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
+ traveller_identity
+ parking_lot_hours_of_operation
+ handicap_access_information.

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_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. If the capacity is set to 99999, then the update failed.

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_tag_data
+ parking_lot_cost

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. The time is held as the number of seconds since a fixed reference point, from which the actual time and date can be easily computed.

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 travellers of all types, i.e. including drivers and commuters, 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

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 travellers. If sent to one (1) the change was accepted and if set to zero (0), the

parking_lot_charge_details

This data flow is sent from the Provide Electronic Payment Services function to the Manage Traffic 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.

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.

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_charge_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:

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 and occupancy. 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_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_for_archive

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide data to the data archive about 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_for_archive_attributes

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide data attribute information to the data archive about the capacity of the parking lot and any advanced bookings that have been made. 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_data_request

This data flow is sent from the Provide Driver and Traveller 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 data and time. This data is requested as part of the process of putting together a proposed trip in response to a traveller's trip requestThis data flow contains the following items each of which is defined in its own DDE:

date
+ parking_lot_identity
+ time
+ traveller_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_dms_allocation

This data flow is used within the Manage Traffic function and is provided by the Plan System Deployment function. It 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.

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_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_hours_of_operation
This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveller 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 traveller 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 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:

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_operator_input_data
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_operator_output_data
This data flow is used within the Manage Transit function to provide data to the parking lot operator. This data may take the form of a request to change the state of the parking lot, or the parking lot state, where this is not available locally from other

parking_lot_operator_transit_update
This data flow is used within the Manage Transit function to provide data to the parking lot operator about the response received to a request for new or additional park and ride (P+R) public transport services from the parking lot.

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 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 payment instrument. It is only sent when a credit identity has been previously received from the 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 payment instrument. It is only sent when a value of stored credit has been previously received from the 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 store 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.

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 Traveller 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 traveller'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

parking_lot_reservation_request

This data flow is sent from the Provide Driver and Traveller 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 traveller 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
+ traveller_identity.

parking_lot_sensor_allocation

This data flow is used within the Manage Traffic function and is provided by the Plan System Deployment function. It 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_type

This data flow is used within the Manage Traffic function and is provided by the Plan System Deployment function. It 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 Traveller 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 and occupancy. 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_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 three 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:

3{parking_lot_increasing_threshold}
+ 3{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_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_tag_data

This data flow is used within the Provide Electronic Payment Services function and contains the data that has been provided by the 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 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_tag_data_clear
This data flow is used within the Provide Electronic Payment Services function and contains the parking lot tag 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_tag_data.

parking_lot_tag_data_collect
This data flow is used within the Provide Electronic Payment Services function and contains the parking lot tag 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_tag_data.

parking_lot_tag_data_input
This data flow is sent from the Provide Electronic Payment Services function to the Manage Traffic function. It contains the data from parking lot and toll tags on-board vehicles which will be used to calculate vehicle journey times for links in the road (surface street) and freeway network served by the Manage Traffic function. The data consists of a unique identity number which is assigned to each tag as it is read

parking_lot_tag_data.

parking_lot_tag_data_needed
This data flow is used within the Manage Traffic and Provide Electronic Payment Services functions to request the output of the data from a toll tag that may be on-board a vehicle. This data will be used to calculate vehicle journey times for links in the road (surface street) and freeway network served by the Manage Traffic function.

parking_lot_tag_data_read
This data flow is used within the Provide Electronic Payment Services function and contains the parking lot tag data that is being read from a store on-board the vehicle. In addition to the credit identity or stored credit value which will be unchanged, this data will contain 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_tag_data.

parking_lot_tag_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_tag_data_store
This data store is used within the Provide Electronic Payment Services function and contains the parking lot tag 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_tag_data.

parking_lot_tag_data_update
This data flow is used within the Provide Electronic Payment Services function and contains the parking lot tag data that has been updated. The updated 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_tag_data.

parking_lot_tag_data_write
This data flow is used within the Provide Electronic Payment Services function and contains the parking lot tag data that has been updated and is being written into a store on-board the vehicle. In addition to the credit identity or stored credit value which will be unchanged, this updated data will contain 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_tag_data.

parking_lot_tag_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 tag cannot be read at a parking lot.

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_transit_request
This data flow is sent by the Manage Traffic function to the Manage Transit function and contains a request for new or additional park and ride (P+R) public transport services to be provided from the parking lot.

parking_lot_transit_response
This data flow is sent by the Manage Transit function to the Manage Traffic function and contains the response to a request for new or additional park and ride (P+R) public transport services to be provided from the 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_output_data
This data flow is used within the Manage Transit function to provide data to other parking lot systems. This data may take the form of a request to change the state of the parking lot, or the parking lot state, where this is not available locally from other

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_transit_update
This data flow is used within the Manage Transit function to provide data to other parking lot systems about the response received to a request for new or additional park and ride (P+R) public transport services from the parking lot.

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 Traveller Services function to the Provide Electronic Payment Services function and contains requests for payments to be made by travellers 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

+ parking_lot_data_request
+ parking_lot_reservation_request
+ request_prices
+ rideshare_payment_request
+ traveller_map_update_payment_request
+ traveller_other_services_payment_request
+ traveller_payment_request
+ traveller_personal_display_update_cost
+ traveller_personal_display_update_payment_request
+ traveller_personal_map_update_cost
+ traveller_personal_trip_costs
+ traveller_roadside_trip_costs
+ yellow_pages_service_provider_registration_request.

payment_result

This data flow is sent by the Provide Electronic Payment Services function to the Provide Driver and Traveller Service function and contains responses to requests for payment by travellers, 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
+ parking_lot_availability
+ parking_lot_reservation_confirm
+ prices
+ rideshare_payment_confirmation
+ traveller_map_update_payment_response
+ traveller_payment_response
+ traveller_personal_display_update_payment_response + traveller_other_services_payment_result
+ traveller_personal_credit_identity
+ traveller_roadside_credit_identity
+ vehicle_toll_probe_data
+ yellow_pages_service_provider_registration_response
+ traveller_info_payments_transactions.

payment_transaction_records

This data flow is used within the Provide Electronic Services function and contains records of all payment transactions for services such as driver and traveller map updates, provision of other (yellow pages) services, and registration of suppliers of these services. It consists of the following data items each of which is defined in its own DDE:

driver_map_update_payments_transactions
+ transit_user_payments_transactions
+ traveller_map_update_payments_transactions
+ traveller_trip_payments_transactions
+ yellow_pages_provider_payments_transactions.

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

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

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

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

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

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_presence
This data flow from the Process Traffic Sensor Data function includes the data needed to determine the presence of a pedestrian or other non-vehicle user at or near a roadside.

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.

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

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_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.

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

planned_event_data_for_vehicle_signage
This data flow is used within the Manage Traffic function. It contains data about planned events for output as part of in-vehicle signage data. 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.

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
+ 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_advisories
This data flow is used within the Provide Driver and Traveller Services function and contains data about planned events for use in advisory messages that are requested by and output to drivers and commuters in vehicles. The data will be restricted to that which is in the area local to the vehicle's current location and in the road and highway network 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{planned_event_details}.

planned_events_for_broadcast
This data flow is used within the Provide Driver and Traveller Services function and contains data about planned events for use in wide area broadcast messages that are automatically output to drivers and travellers in vehicles. The data will be restricted to that which is unusual using parameters set up by the ISP operator and will only relate to 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
+ 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 centre (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}.

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.

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}.

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_accel_decel_profile

This data flow is used within the Provide Vehicle Control and Monitoring function. It contains the profile for acceleration and deceleration profile for use by a vehicle when operating as part of a platoon. This data is that which the sending vehicle is using currently and is for use by the receiving vehicle so that it will accelerate and decelerate at the same rate as the vehicle in front. The data flow consists of the following data item which is defined in its own DDE:

vehicle_accel_decel_data.

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-AHS control mode), join platoon, i.e. join AHS platoon, leave AHS, exit (emergency and means steer left), steer left, steer right, centre steering.

platoon_ahead_vehicle_status

This data flow is used within the Provide Vehicle Control and Monitoring function. It contains the status of the vehicle in front of the receiving vehicle in the platoon and consists of the following data item which is defined in its own DDE:

vehicle_status_details.

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_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

This data flow is used within the Provide Vehicle Control and Monitoring function. It contains the headway to be used by a vehicle over its entire speed range whilst in automatic control mode and travelling as part of a platoon. This data is that which the sending vehicle is using currently and is for use by the receiving vehicle so that it will maintain the correct distance from the vehicle in front. The data flow consists of the following data item which is defined in its own DDE:

vehicle_headway_data.

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_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_rear_vehicle_status

This data flow is used within the Provide Vehicle Control and Monitoring function. It contains the status of the vehicle behind the receiving vehicle in the platoon and consists of the following data item which is defined in its own DDE:

vehicle_status_details.

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 AHS 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_archive_data_log

This data flow contains data collected and logged within the pollution data log. It contains a periodic average of the pollution data collected from specific roadside locations and by sensors from actual vehicles. The data flow consists of the following data items each of which is defined in its own DDE:

pollution_state_static_log_data
+ pollution_state_vehicle_log_data.

pollution_archive_data_log_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.

pollution_area_acceptance_data

This data flow contains the levels of atmospheric pollutants which are acceptable, i.e. the presence of pollutants within the geographic 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 area acceptance time data flow. These levels will be set at lower values than those defined in the area tolerance levels data flow.

pollution_area_acceptance_times

This data flow contains the times for which the levels of atmospheric pollution defined in the area 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 area tolerance data flow.

pollution_area_tolerance_data

This data flow contains the levels of atmospheric pollutants which are tolerable, i.e. the presence of pollutants within the geographic 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 area tolerance time data flow.

pollution_area_tolerance_times

This data flow contains the times for which the levels of atmospheric pollution defined in the area 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 area acceptance data flow.

pollution_data_log

This data store is used within the Manage Traffic function and contains a record of all the pollution states determined by processes within the Manage emissions facility from sensor inputs. This data is periodically read from the store and sent to the Plan System Deployment function for use in ITS simulation and performance analysis. The store consists of the following data items each of which is defined in its own DDE:

pollution_state_area_collection
+ list_size
+ list_size{pollution_state_roadside_collection + pollution_state_vehicle_collection}.

pollution_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).

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_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 pollution outside of the standard limits. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ dms_pollution_message.

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_area_acceptance_data
+ pollution_area_acceptance_times
+ pollution_area_tolerance_data
+ pollution_area_tolerance_times
+ pollution_roadside_acceptance_data
+ pollution_roadside_acceptance_times
+ pollution_roadside_tolerance_data
+ pollution_roadside_tolerance_times
+ pollution_vehicle_acceptance_data
+ pollution_vehicle_acceptance_conditions.

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 traffic operations personnel via the interface process. It consists of the following data items each of which is defined in its own DDE:

pollution_area_acceptance_data
+ pollution_area_acceptance_times
+ pollution_area_tolerance_data
+ pollution_area_tolerance_times
+ pollution_roadside_acceptance_data
+ pollution_roadside_acceptance_times
+ pollution_roadside_tolerance_data
+ pollution_roadside_tolerance_times
+ pollution_vehicle_acceptance_conditions
+ pollution_vehicle_acceptance_data
+ state_contact_data.

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 traffic 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_roadside_acceptance_data

This data flow contains the levels of atmospheric pollutants which are acceptable, i.e. the presence of pollutants at the roadside in the geographic 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 roadside acceptance time data flow. These levels will be set at higher values than those defined in the roadside tolerance levels data flow.

pollution_roadside_acceptance_times

This data flow contains the times for which the levels of atmospheric pollution defined in the roadside 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 roadside tolerance data flow.

pollution_roadside_tolerance_data

This data flow contains the levels of atmospheric pollutants which are tolerable, i.e. the presence of pollutants at the roadside in the geographic 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 roadside tolerance time data flow. These levels will be set at lower values than those defined in the area acceptance levels data flow.

pollution_roadside_tolerance_times

This data flow contains the times for which the levels of atmospheric pollution defined in the roadside 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 roadside acceptance data flow.

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 items that provide the actual levels of various pollutants, each of which is defined in their own DDE:

pollution_state_area_collection
+ list_size
+ list_size{pollution_state_roadside_collection + pollution_state_vehicle_collection}.

pollution_state_area_collection

This data flow is used within the Manage Traffic function and contains the current 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_nitrous_oxide_pollution
+ current_sulfur_dioxide_pollution
+ current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution
+ current_particulate_pollution
+ current_pollution_location
+ area_air_quality_index.

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_nitrous_oxide_pollution
+ current_sulfur_dioxide_pollution
+ current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution
+ current_particulate_pollution
+ current_pollution_location
+ vehicle_type.

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 traffic 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_nitrous_oxide_pollution
+ current_sulfur_dioxide_pollution
+ current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution
+ current_particulate_pollution
+ current_pollution_location
+ vehicle_type.

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 reference data to be sent to the traffic 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_roadside_collection

This data flow is used within the Manage Traffic function and 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_nitrous_oxide_pollution + current_sulfur_dioxide_pollution + current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution + current_particulate_pollution

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, at both a general level within the geographic area served by the function, and at the roadside. It consists of the following items of data each of which is defined in its own DDE:

pollution_area_acceptance_data
+ pollution_area_acceptance_times + pollution_area_tolerance_data
+ pollution_area_tolerance_times
+ pollution_roadside_acceptance_data + pollution_roadside_acceptance_times + pollution_roadside_tolerance_data + pollution_roadside_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 items each of which is defined in its own DDE:

pollution_state_area_collection
+ pollution_state_roadside_collection.

pollution_state_static_log_data

This data flow is used within the Manage Traffic function and contains a periodic average of the pollution data collected from both the general area served by the function and from specific roadside locations, i.e. static pollution data. It consists of the following data items each of which is defined in its own DDE:

pollution_state_area_collection
+ pollution_state_roadside_collection.

pollution_state_vehicle_acceptance_criteria

This data flow is used within the Manage Traffic function and contains data on the pollution levels produced by different types of vehicle under various operating conditions. It consists of the following items of data each of which is defined in its own DDE:

pollution_vehicle_acceptance_data
+ pollution_vehicle_acceptance_conditions.

pollution_state_vehicle_collection

This data flow is used within the Manage Traffic function and contains the average levels of the various types of pollution 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_ozone_pollution
+ current_nitrous_oxide_pollution + current_sulfur_dioxide_pollution + current_hydrocarbon_pollution

+ current_carbon_monoxide_pollution + current_particulate_pollution

pollution_state_vehicle_log_data
This data flow is used within the Manage Traffic function and contains a periodic average of the pollution data measured by sensors from actual vehicles. It consists of the following data item which is defined in its own DDE:

pollution_state_vehicle_collection.

pollution_vehicle_acceptance_conditions
This data flow contains the vehicle operating conditions at which the associated levels of atmospheric pollutants must not be exceeded. If they are then a pollution incident will be generated for the vehicle leading the details being passed to the enforcement agency terminator, which may result in eventual prosecution of the vehicle's owner.

pollution_vehicle_acceptance_data
This data flow contains the levels of atmospheric pollutants 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

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 Traveller 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 Traveller 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 Traveller 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 Traveller 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

possible_defined_response_identity
This data flow is used within the Manage Traffic function and is the indenity 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_data
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. 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
+ 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

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
+ 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
+ predicted_weather
+ disaster_traffic_advisory_data.

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.

posted_speed_limit
This data flow contains the speed limit posted for a particular section of the roadway that also contains an enforcement function. This speed limit may the the static speed limit or a variable speed limit based on roadway and environmental conditions.

predicted_data_for_broadcast
This data flow is contains a subset of the predictive model data which is pertinent to broadcast to users. The data flow consists of the following data items each of which is defined in its own DDE:

predicted_highway_network_data
+ predicted_parking_lot_data
+ predicted_road_network_data.

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_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 travellers it is predicted will be guided down each non-vehicle and non-public transport 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_travellers}
+ 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}.

predicted_weather

This data flow is used within the Manage Traffic and Provide Driver and Traveller Services functions. It contains details of the predicted weather conditions, e.g. temperature, pressure, wind speed, wind direction, humidity, precipitation, visibility, light

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 Traveller 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
+ list_size{route_segment_identity
+ route_segment_volume_delay_predictions
+ route_segment_queue_delay_predictions
+ route_segment_speed_predictions
+ route_segment_occupancy_predictions}.

prediction_data_for_advisories

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide advisory messages to drivers and commuters in vehicles showing predictions of traffic data for route segments on the road and highway network served by the Manage Traffic function. Data will only be provided where it is relevant to the current location of the vehicle from which the request originated. The data flow consists of the following items each of which is defined in its own DDE:

list_size
+ list_size{route_segment_identity
+ route_segment_volume_delay_predictions
+ route_segment_queue_delay_predictions
+ route_segment_occupancy_predictions}.

prediction_data_for_broadcast

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide wide area broadcast messages to drivers and commuters in vehicles showing predictions of traffic data for links on the road and highway network served by the Manage Traffic function. The data will be restricted to that which is unusual using parameters set up by the ISP operator. The data flow consists of the following items each of which is defined in its own DDE:

1{link_speed+link_journey_time+link_delay}link_list_for_highways
+1{link_speed+link_journey_time+link_delay}link_list_for_roads.

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.

predictive_model_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:

predicted_highway_network_data + predicted_hov_lane_data
+ predicted_other_routes_use + predicted_parking_lot_data
+ 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 Traveller 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 highway system (ahs) lanes. It contains the preferences being placed on the choice of a route being requested by a driver or traveller 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 traveller 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 Traveller Services function and contains the details of options that a traveller 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 highway system (ahs) 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 ahs 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 Traveller Services function and contains details of the public transport route options that a traveller has requested as part of a trip request.

preferred_weather_conditions
This data flow is used within the Provide Driver and Traveller Services function and contains.

price_data
This data flow contains data on the current prices being charged for tolls, parking lots and public transport 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_details
+ parking_lot_charge_direct_details
+ parking_lot_charge_change_response
+ parking_charge_response_for_archive
+ other_parking_lot_price_data
+ probe_data_for_traffic
+ tag_data_inputs
+ transit_fare_details

+ transit_fare_direct_details
+ toll_price_changes_response
+ toll_price_details
+ toll_price_direct_details.

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 public transport 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.

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 public transport fares, to request changes to their current prices in order that the modal split of trips being undertaken by travellers 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_request
+ parking_lot_charge_direct_request
+ parking_charge_request_for_archive
+ other_parking_lot_price_data_request
+ transit_fare_request
+ transit_fare_direct_request
+ tag_data_requests
+ toll_price_changes_request
+ toll_price_request
+ toll_price_direct_request.

prices
This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveller Services function and contains data on the current prices being charged for tolls, parking lots and public transport 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.

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.

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}.

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_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
+ roadway_environment_conditions
+ strategy_data
+ link_state_data
+ hri_state_data
+ roadway_traffic_conditions.

processed_environment_data
This data flow contains the processed data from environmental sensors or roadside condition sensors that are on a maintenance vehicle, or are placed at the roadside.

processed_environmental_data_for_fusing
Internal Flow.

processed_environmental_data_for_road_forecasting
Internal Flow.

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.

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_update
This data flow provides urgent information from rail operations to the Manage Alerts and Advisories process for dissemination to ITS users.

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_services_costs

This data flow contains details of the costs for a traveller's use of heavy rail services that may be suitable for inclusion in the response to a traveller'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:

4{cost}.

rail_services_destination

This data flow is used within the Provide Driver and Traveller Services function. It contains the destination of the heavy rail service(s) that are the closest fit with a traveller'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 traveller 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 Traveller Services function. It contains the time at which a railroad service arrives the destination point for heavy rail services in a traveller's trip plan. This destination may not be the actual final destination of the railroad service, because the traveller may be leaving at some intermediate point along its route. The service will be a close fit with a traveller's proposed trip plan. The data flow consists of the following data item which is defined in its own DDE:

rail_services_details

This data flow is used within the Provide Driver and Traveller Services function and contains details of the heavy rail services that may be suitable for use by a traveller 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_intermediate_arrival_time

This data flow is used within the Provide Driver and Traveller Services function. It contains the time at which a railroad service arrives at an intermediate point on the part of a traveller's route to be provided by a railroad. Up to four (4) of these intermediate points may be specified. These four points are those at which the traveller 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 traveller 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 traveller'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 Traveller Services function. It contains the time at which a railroad service departs from an intermediate point on the part of a traveller's route to be provided by a railroad Up to four (4) of these intermediate points are allowed as part of a particular railroad route. These four points are those at which the traveller 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 traveller 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 traveller's proposed trip. The data flow consists of the following data item which is defined in its own DDE:

rail_services_intermediate_point

This data flow is used within the Provide Driver and Traveller Services function. It contains the location of an intermediate point on a route operated by a railroad. Up to two (2) of these intermediate points are allowed as part of a particular service and they will both be the locations of railroad stations. They will be stations at which the traveller 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 traveller'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 Traveller Services function. It contains the origin of the heavy rail service(s) that are the closest fit with a traveller'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 traveller 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 Traveller Services function. It contains the time at which a railroad service leaves the origin point for heavy rail services in a traveller's trip plan. This origin may not be the actual origin of the particular railroad service, because the traveller may be joining at some intermediate point along its route. The service will be a close fit with a traveller'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 Traveller Services function. It contains details of a heavy rail route that will suit a traveller's proposed trip and is associated with a cost and a schedule. The route may have up to two intermediate points at which the services calls, and at which the traveller 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 traveller. The data flow consists of the following data items each of which is defined in its own DDE:

rail_services_origin
+ 2{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 traveller as part of a proposed trip. It consists of the following data item which is defined in its own DDE:

2{rail_services_route_details}.

rail_services_schedule_details

This data flow is used within the Provide Driver and Traveller Services function. It contains details of the departure and arrival times at stations along a railroad route that will suit a traveller's proposed trip and are associated with a cost and a route. The route may have up to four of these intermediate stations at which the services stops, and at which the traveller may have to change from one train to another. There may be other stations at which the train stops, but the traveller 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
+ 4{rail_services_intermediate_arrival_time
+ rail_services_intermediate_depart_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 traveller as part of a proposed trip. It consists of the following data item which is defined in its own DDE:

4{rail_services_schedule_details}.

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

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.

release_container_to_driver
Internal Flow.

release_information
Internal Flow.

release_status
Internal Flow.

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_current_traffic_media_data

This data flow is used within the Manage Traffic function to request traffic details for output by the media operator. The traffic details will comprise link journey times, traffic flows, equipment faults and the text(s) currently being sent to dynamic message signs specified in the request, as stored in the store of current data. The data flow consists of the following data items each of which is defined in its own DDE:

request_traffic_flow
+ request_link_journey_time
+ request_equipment_faults
+ request_dms_outputs.

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_dms_outputs

This data flow is used within the Manage Traffic function to request details of the texts being output to dynamic message signs (dms) for output by the media operator. The dms texts will only be for those signs specified in the request. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity}.

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_equipment_faults

This data flow is used within the Manage Traffic function to request details of the faults currently outstanding on indicators. The identity of the indicators for which this data is required will be specified in the request. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity}.

request_erms

This data flow is sent from the Manage Traffic function to the Manage Emergency Services function. It contains the following data item which is defined in its own DDE:

hov_lane_violation
+ wrong_way_vehicle_detection
+ incident_alert
+ incident_details_request
+ incident_response_clear
+ vehicle_pollution_alert.

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.

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.

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_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_incident_change
This data flow is sent to the Manage O&M function from the Manage Incidents function to request changes to the timing of work requested by the Manage O&M function. This will have been provided as input to the function and been recorded as a possible

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_media_data
This data flow is used request incident data for output to the Media System. The request must specify whether the data to be output should include current or predicted incident data, or any combination of the two, or data about a particular incident. The request for output must also include the geographic area(s) to be covered.

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_link_journey_time
This data flow is used within the Manage Traffic function to request link journey times for output by the media operator. The journey times will be for those links specified in the request. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{link_identity}.

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_long_term_traffic_media_data
This data flow is used within the Manage Traffic function to request traffic details for output by the media operator. The traffic details will comprise link journey times, traffic flows, equipment faults and the text(s) currently being sent to dynamic message signs specified in the request, as stored in the store of data from the predictive model. The data flow consists of the following data items each of which is defined in its own DDE:

request_traffic_flow
+ request_link_journey_time.

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 Traveller 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 Traveller 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

request_other_TMC_data
This data flow is used within the Manage Traffic function to request data from Traffic Management Centres (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_oldest_time.

request_predictive_traffic_media_data
This data flow is used within the Manage Traffic function to request traffic details for output by the media operator. The traffic details will comprise link journey times and traffic flows specified in the request, as stored in the store of long term data. The data flow consists of the following data items each of which is defined in its own DDE:

request_traffic_flow
+ request_link_journey_time
+ request_equipment_faults
+ request_dms_outputs.

request_prices
This data flow is sent from the Provide Driver and Traveller Services function to the Provide Electronic Payment Service function to request the current prices for tolls, parking lot spaces and public transport fares.

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 public transport fare from the roadside, i.e. a public transport stop. It consists of the following data items each of which is defined in its own DDE:

transit_fare
+ transit_roadside_fare_collection_identity

request_route_segment_data
This data flow is used within the Provide Driver and Traveller Services function. It contains the following data items:

action_flag - set to one (1) for find data or zero (0) for delete data,

link_list - 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 Traveller 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_traffic_flow
This data flow is used within the Manage Traffic function to request traffic flow data for output by the media operator. The data will be for those links specified in the request. The data flow consists of the following data items each of which is defined in its own DDE:

list_size

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_media_data
This data flow is used within the Manage Traffic function to request traffic data for output to the Media Operator, or to the Media System. The request must specify whether the data to be output to the Media Operator must include current, long term or predicted data, or any combination of the three, or the particular traffic conditions in the case of output to the Media System.
The data flow consists of the following data items each of which is defined in its own DDE:

request_current_traffic_media_data
+ request_long_term_traffic_media_data
+ request_predictive_traffic_media_data
+ request_unusual_traffic_data_output.

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 or predicted data, or any combination of

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 public transport route generation process, or as a background for displays of public transport services requested by the public transport fleet manager. It is generated as a result of a specific request for an update from the public transport fleet manager. The map data produced as a result of this request will be provided by a specialist supplier.

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 public transport 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 public transport 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 public transport services (routes and schedules). The request is generates as a result of input from the public transport fleet manager, to whom the data will be sent via the interface

request_transit_user_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 commuter who has violated the public transport fare payment process at a roadside fare collection

request_transit_user_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 commuter who has violated the public transport fare payment process at an on-board vehicle fare

request_unusual_traffic_data_output
This data flow is used within the Manage Traffic function to details of any unusual congestion for output by the media operator. The data will be for those links specified in the request. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{link_identity}.

request_vehicle_fare_payment
This data flow requests payment processing of one or more public transport fare transactions from on-board a public transport 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 public transport). 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
+ transit_user_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 is sent to the Manage Traffic function indicating the availability of the requested traffic management resources and provides current status of their deployment.

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.

retained_traveller_guidance_data
This data store is used within the Provide Driver and Traveller Services function and is used to hold data previously input as part of a traveller route request. It is retained to prevent the traveller having to re-input often used data.

retained_vehicle_guidance_data
This data store is used within the Provide Driver and Traveller 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_model_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
+ current_data
+ predictive_model_data.

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_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 (ie. 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 public transport 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
+ list_size{transit_route_segment_number}.

rideshare_confirmation

This data flow is used within the Provide Driver and Traveller Services function to show that a traveller 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
+ traveller_identity.

rideshare_confirmation_data

This data flow is used within the Provide Driver and Traveller 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 Traveller Services function to hold data about available rideshare routes and travellers. 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_data_for_archive

This data flow is used within the Provide Driver and Traveller Services function to provide data to the data archive about the available rideshare routes and travellers. The data flow consists of the following data items each of which is defined in its own DDE:

rideshare_eligibility_data
+ rideshare_confirmation_data

rideshare_details

This data flow is used within the Provide Driver and Traveller Services function and contains a list of potential ridesharing matches for output to the traveller. 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 Traveller Services function to identify potential rideshare participants and to determine their eligibility.

rideshare_for_archive

This data flow is used within the Provide Driver and Traveller Services function to provide data to the data archive about the requests for rideshare and available rideshare routes and travellers. It consists of the following data items each of which is defined in its own DDE:

rideshare_data_for_archive

rideshare_for_archive_attributes

This data flow is used within the Provide Driver and Traveller Services function to provide data attribute information to the data archive about the requests for rideshare and available rideshare routes and travellers. 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.

rideshare_ineligible_status_notification

This data flow is used within the Provide Driver and Traveller Services function and is used to indicate that a traveller 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 Traveller Services function to transfer information about rideshare requests, rideshare routes and travellers, and requests for rideshare as part of a traveller's proposed trip request. It contains the following data items each of which is defined in its own DDE:

rideshare_confirmation
+ rideshare_response
+ rideshare_data_for_archive
+ traveller_rideshare_request_for_archive.

rideshare_payment_confirmation

This data flow is used by the Provide Electronic Payment Services function to confirm to the Provide Driver and Traveller Services function that payment for a traveller'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 Traveller Services function to request that the Provide Electronic Payment Services function carries out the transactions needed for payment of charges necessary for a traveller 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_and_confirmation

This data flow is used within the Provide Driver and Traveller Services function to transfer information about rideshare requests. It contains the following data items each of which is defined in its own DDE:

traveller_rideshare_confirmation
+ traveller_rideshare_request.

rideshare_request_from_eligible_traveller
This data flow is used within the Provide Driver and Traveller Services function. It contains data about a ride request that has been screened to ensure the traveller'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:

traveller_identity
+ traveller_rideshare_data
+ traveller_rideshare_preferences
+ traveller_rideshare_constraints.

rideshare_response
This data flow is used within the Provide Driver and Traveller Services function to provide the response to a traveller's rideshare request. It contains the following data items each of which is defined in its own DDE:

rideshare_details
+ rideshare_selection_number
+ traveller_identity.

rideshare_selection
This data flow is used within the Provide Driver and Traveller Services function and contains details of the rideshare that has been prepared in response to a traveller's rideshare request. It consists the following data items each of which is defined in its own DDE:

rideshare_details
+ rideshare_selection_number

rideshare_selection_number
This data flow is used within the Provide Driver and Traveller Services function to provide the identification number for a rideshare selection that has been made in response to a traveller's request. This number consists of up to eight (8) alphanumeric characters and is used to identify a rideshare selection in all subsequent transactions.

ro_requests
This data flow is generated in response to a need for hri status for rail operations.

road_condition_data
This data flow contains road condition sensor data from sensors at the roadside.

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
+ dms_road_allocation.

road_data
This data flow is sent from the Provide System Deployment function to the Provide Driver and Traveller Services function. It contains definitions of the road network in the geographic area covered by the particular ITS to which the functions belong, that can be used as a source of route guidance data.

road_device_control_for_maintenance
This data flow from the Control Roadway Maintenance Devices function contains the data from which devices at the roadside will affect the display of traffic signals and other indicators to the travellers. This data flow allows the Manage O&M function to control traffic patterns in and around work zones on surface streets and arterial roadways. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ indicator_junction_controls}.

road_forecasts

This data flow contains weather or road condition forecasts for roads under the jurisdiction of the maintenance operations. The forecasts are created using processed sensor data, or a fusion of sensor data with Malaysian Meteorological Service or Meteorological Service Provider data.

road_information_maintenance_data

This data flow from the Control Roadway Maintenance Devices function contains the data to be used alongside roads for highway advisory radio, dynamic message signs or other means of information dissemination to travellers around a work zone. It consists of the following items each of which is defined in its own DDE:

dms_data_for_roads
+ har_data_for_roads.

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}.

road_segment_location

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveller 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_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_warning

This data flow within the Process Advanced Roadway Data function contains information to be displayed using other roadside devices and may include warnings of pedestrians or bicyclists in the roadway or other potential obstacles.

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

roadside_condition_data

This data flow contains sensor data relating to environmental hazards or physical conditions.

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_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 store includes information collected from sensors, such as environment data, fault data, and sensor status. The data store contains the following data items each of which is defined in its own DDE:

sensor_data_archive_input
+ sensor_data_attributes
+ archive_environmental_sensor-data
+ environment_sensor_attributes
+ fault_data
+ fault_data_attributes
+ sensor_status
+ sensor_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:

sensor_data_archive_input
+ sensor_data_attributes
+ archive_environmental_sensor_data
+ environment_sensor_attributes
+ fault_data
+ fault_data_attributes
+ sensor_status
+ sensor_attributes.

roadside_facility_list_FB

This data flow is sent by the government administrator to the Manage Commercial Vehicles function. It consists of a list of the locations of commercial vehicle roadside checkstation facilities. The size assumption for the data flow is related to the assumed number of CVO facilities (CVO_FAC). 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

roadside_sensor_configuration_data

This data flow contains configuration data used to set up the operation of a roadside condition sensor.

roadway_asset_status

This data flow is produced by the function to Control Roadway Maintenance Devices. This data includes information about the roadway devices that are managed by the O&M function. This could include information such as the status from signal devices or surveillance devices

supporting the dynamic road warning or smart work zone services.

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_condition_coordination
This data flow from the Collect Roadway Condition Data function contains information about roadway conditions detected by roadside devices that can be used to output to drivers using other roadside devices. This data may include hazards such as mud slides, or slippery conditions on the surface of the roadway that could be used to warn drivers as they approach the area.

roadway_condition_for_traffic
This data flow contains sensor data relating to environmental hazards or physical conditions.

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_maintenance_activity_data
This data flow within the Manage O&M function is sent by the Control Roadway Devices function as an input to the Schedule Maintence Activity function. It may contain information about surveillance equipment in the field around work zones or it may contain status or feedback information concerning roadway information processes.

roadway_speed_configuration
This data flow is an output from the Provide Traffic Operations Personnel Traffic Data Interface that allows traffic operators to modify the variable speed limit settings for given segments in the roadway based on weather and other conditions.

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_traffic_maintenance_information
This data flow contains information about road closures, detours, and traffic restriction information caused by O&M activities that may affect traffic operations within the region, as well as environmental or road forecast data which is collected or created by the maintenance functions. The data flow consists of the following data items each of which is defined in its own DDE:

maintenance_data_for_dissemination
+environmental_data_for_dissemination.

roadway_violation_parameters
This data flow is sent by the Provide Traffic Operations Personnel Traffic Data Interface function and contains information to allow speed and signal violations to be configured. This may include the maximum safe speed as determined by weather or policy decisions or configurations of traffic signal enforcement devices as determined by the traffic operations personnel. This may change based on traffic and road conditions or policy decisions.

roadway_warning_data_coordination
This data flow within the Process Advanced Roadway Data function contains information to be passed onto adjacent roadside elements. This information may include warnings concerning hazardous conditions or reduced visibility that need to be coordinated with other devices nearby for output to drivers.

roadway_warning_sensor_configuration
This data flow from the Provide Traffic Operations Personnel Traffic Data function contains the sensor configuration data to control how data is gathered for the dynamic roadway warning devices. This may include the threshold values to determine icy conditions, unsafe speed parameters, or other calibration information. This may also include information based on forecast weather conditions for the location.

roadway_warning_speed_conditions
This data flow from the Process Roadway Warning Data function is used by the Post Speed Limit function to determine the maximum safe speed given the current road conditions.

roadway_warning_traffic_data
This data flow contains data for dynamic roadside warnings. This data is collected at the roadside and passes to the Process Traffic Data function to allow operators to generate roadside warnings to drivers. This data may include environmental hazards, roadway conditions, obstacles, or vehicles driving in an unsafe manner for conditions at the time.

route
This data flow is used within the Provide Driver and Traveller 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 traveller through the trip request data. The route segment(s) will be in sets, one for a primary route (the nearest fit to the traveller'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 Traveller 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

route_data
This data flow is used to transfer data between the Provide Driver and Traveller Services function and the Manage Traffic function. It contains a wide variety of data covering road network use by guided vehicles and requests for current traffic data which can be presented to travellers, as well as a traveller 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
+ special_vehicle_priority_routing
+ traffic_data_advisory_request
+ traffic_data_guidance_request
+ traffic_data_kiosk_request
+ traffic_data_personal_request

+ traffic_data_ridesharing_request
+ traveller_traffic_profile.

route_guidance_data_for_archive

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide data to the data archive about details of all the vehicle routes which are currently being used by vehicles using dynamic guidance. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{vehicle_guidance_stored_data}.

route_identity

This data flow contains the identity of a route that is to be used for either on-line vehicle or traveller guidance. The data is for internal use within the function and identifies the route when the driver or traveller 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 traveller. The primary route will be that which most closely fits the traveller's requirements, whilst 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 therefore consists of the following data item which is defined in its own DDE:

1{route_segment_number}4.

route_point

This data flow is used within the Provide Driver and Traveller 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 traveller as the trip request. In either case it may be the origin, destination, or an intermediate point which the traveller wishes to pass through, or where the trip planning facility has decided that it is necessary to change modes.

route_reports

This data flow is used with the Provide Driver and Traveller Services function and contains a snap shot of the current usage travellers are making of roads and other (non-public transport) methods of transport. It contains the following data items each of which is define in its own DDE:

current_other_routes_use_for_archive

route_segment

This data flow is used within the Provide Driver and Traveller 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 Traveller 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 Traveller 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 Traveller 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 TMC, 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
+ list_size{route_segment_stored_details}.

route_segment_details_updated
This data flow is used within the Provide Driver and Traveller 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_end_point
This data flow is used within the Provide Driver and Traveller 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_travellers
This data flow contains the number of travellers 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 public transport services. The travellers 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 public transport vehicles.

route_segment_identity
This data flow is used within the Provide Driver and Traveller Services function and 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 Traveller 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 traveller 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

route_segment_number
This data flow is used within the Provide Driver and Traveller Services function and contains the number of segments in a route that is being provided in response to a trip request from a traveller. The maximum number of route segments allowed in a route is two hundred and fifty five (255).

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 shown as a percentage (%) value with zero
(0) meaning that there are no vehicles present and one hundred (100) meaning that the vehicles are not moving.

route_segment_pollution_data
This data flow is used within the Provide Driver and Traveller 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_nitrous_oxide_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 Traveller 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 Traveller 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.

vehicle_speed.

route_segment_start_point

This data flow is used within the Provide Driver and Traveller 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 Traveller 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_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 Traveller 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

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, public transport vehicles only, commercial and public transport 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_use_prediction

This data flow is used within the Provide Driver and Traveller Services function. It contains data about the number of guided vehicles that will be using a route segment over a set of time periods. Typically these time periods will cover five (5) minutes as so far as traffic management is concerned there is no advantage in providing a greater resolution. 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

route_segment_way_point

This data flow is used within the Provide Driver and Traveller 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:

route_selection_parameters

This data store is used within the Provide Driver and traveller Services function and contains parameters used to determine the way in which route are selected for both traveller 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 traveller 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 Traveller 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 Traveller Services function and contains the overall predicted statistics associated with a route which may assist the traveller 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 Traveller 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
+ list_size{vehicle_guidance_stored_data}.

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 following data about vehicle

safety:

driver_safety_status - the status of the driver in terms of their ability to control the vehicle,

vehicle_safety_status - the status of the vehicle in terms of its continued ability to operate in a safe manner, roadside_data - data about the road

conditions, e.g. ice, fog, rain, snow, etc.

plus similar information in the following data items each of which is defined in its own DDE: vehicle_motion_data

safety_state_for_driver

This data flow is used within the Provide Vehicle Monitoring and Control function and the Provide Driver and Traveller 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

safety_warning_for_driver_condition

This data flow is used within the Provide Vehicle Monitoring and Control function and the Provide Driver and Traveller 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 Traveller 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_warning_for_vehicle_condition

This data flow is used within the Provide Vehicle Monitoring and Control function and the Provide Driver and Traveller 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 Traveller 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.

secure_area_broadcast_message

This data flow is sent to the Provide Driver and Traveller Services function by the Manage Transit function and contains textual information for commuters in part of the public transport operational network, i.e. not on-board a public transport vehicle, or at a public transport stop, but in such things as a modal interchange facility, public transport depot, etc. The information will be sent out as part of the response to an emergency or incident being detected within the network.

secure_area_monitoring_control
This data flow is sent to the Provide Driver and Traveller Services function by the Manage Transit function and contains control data for closed circuit television (cctv) systems, or audio equipment, located in the secure area environment. This data may change the pan, tilt, zoom, or other camera or audio operating parameters and may be generated automatically or as a result of input from the public transport system operator.

secure_area_surveillance_information
This data flow is sent from the Provide Driver and Traveller Services Function to the Manage Transit function and represents information about conditions in a secure area environment such as that found in a public transport network. This information is sensed/detected by sensors contained in the Manage Transit function, and includes video, audio, and other image data. The data may have been obtained from closed circuit television (cctv), or other systems that are monitoring activity in the public transport operational network, i.e. not on-board a public transport vehicle, but at a public transport stop, or in such things as a modal interchange facility, public transport depot, etc. The data can be used for incident detection, etc., using automatic analysis techniques.

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.

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 (1) or has not (0) 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_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 Traveller Services function. It will give priority 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

selected_emergency_vehicle_strategy
This data flow is used within the Manage Traffic function and contains the strategy which has been selected to enable priority 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_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 travellers 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: the may be one of 'open' or 'close' the lot and may be applied to some or all of the lots in the geographic area served by the function.

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

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_tags
+ 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 smart 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_smart_probe_data_source_identity

sensor_allocation_for_tags

This data flow contains details of the way in which vehicle provide data receiving equipment is located within the road and freeway network served by the function. If no equipment is allocated to a link then the entries for the identity and location of the equipment will be left blank. 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_tag_data_source_identity
+ vehicle_tag_data_source_location}.

sensor_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.

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_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, 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
+ sensor_data_for_reversible_lanes
+ multimodal_crossing_sensor_data.

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.

sensor_data_for_distribution

This data flow contains raw and processed sensor data. The data flow consists of the following data items each of which is defined in its own DDE:

sensor_output_data
+ roadway_environment_conditions.

sensor_data_for_reversible_lanes

This data flow is used within the Manage Traffic function and contains data from which a wrong way vehicle is detected in a reversible lane through the use of sensors located. It consists of the following data items each of which is defined in its own DDE:

traffic_video_image

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
+ sensor_data_for_reversible_lanes.

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_fault_data
This data flow is used within the Manage Traffic function to show that a sensor has developed a fault that means it is not operating correctly. The fault will have been found by a process that is local to the sensor itself.

sensor_fault_data_report
This data flow is sent to the Manage Operations and Maintenance function from the Manage Traffic function. It contains a report showing that a particular fault has been found in a sensor be either a local or a roadside process. This report acts as a request to effect repairs to restore the sensor to normal operation as soon as possible.

sensor_fault_data_status
This data flow is sent to the Manage Operations and Maintenance function from the Manage Traffic function. It contains a report showing that a particular fault in a sensor has been cleared and that it has been restored to normal operation.

sensor_identity
This data flow contains an identifier of the sensor managed by a sensor station. The identifier would be a code which describes the type of the sensor (e.g. wind, temperature, precipitation, 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
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:

environment_sensor_data
+ traffic_sensor_data
+ traffic_video_image
+ hri_sensor_data
+ roadway_warning_traffic_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_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
+new_sensor_static_data
+parking_lot_current_state
+request_other_TMC_data
+request_sensor_static_data
+ selected_strategy

+ other_status_for_highways
+ other_status_for_roads
+ control_data_for_highways
+ control_data_for_roads.

sensor_status

This data flow is used within the Manage Traffic function to collect sensor status data from the roadside to send to the archive data function. It consists of the following data items each of which is defined in its own DDE:

traffic_sensor_status.

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 public transport vehicles, above ground based sensor for all types of vehicles, above ground based sensor for emergency vehicles, above ground based sensor for public transport vehicles, ground based sensor for cycles, above ground based sensor for cycles, ground based sensor for pedestrians, above ground based sensor for

service_req_and_confirm_data

This store is used within the Provide Driver and Traveller Services function. It contains details of all of the service requests and confirmations input by the traveller via a personal device or kiosk. It contains the following data items each of which is defined in its own DDE:

traffic_data_personal_request_for_archive
+ traffic_data_kiosk_request_for_archive
+ transit_deviations_personal_request_for_archive + transit_deviation_kiosk_request_for_archive
+ traveller_trip_and_cond_requests_for_archive + traveller_yellow_pages_requests_for_archive
+ advisory_data_request_for_archive
+ traveller_route_request_for_archive
+ traveller_confirm_for_archive
+ traveller_route_accepted_for_archive
+ vehicle_route_request_for_archive
+ vehicle_guidance_route_accepted_for_archive + yellow_pages_advisory_requests_for_archive.

service_req_and_confirm_for_archive

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide data to the data archive about traveller service requests and confirmations input by the traveller via a personal device or kiosk. It consists of the following data items each of which is defined in its own DDE:

service_req_and_confirm_data.

service_req_and_confirm_for_archive_attributes

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide data attribute information to the data archive about traveller service requests and confirmations input by the traveller via a personal device or kiosk. 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.

setting_identity
This data flow contains an identifier for a travellers setting, which is used to describe a set of conditions or preferences under which the traveller wants information reported to them in a subscription mode.

setting_preferences
This data flow contains code or text describing the preferences chosen by the traveller. These preferences are then paired with the setting type to create a complete picture of how the traveller wants information transmitted to them.

setting_type
This data flow contains a code for the type of setting which is being produced.

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.

signal_indication_for_enforcement
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 travellers 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 enforcement of the traffic signals. 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}.

signal_violation_detection_data
This data flow contains the violation data including vehicle images, date, time, and the signal settings at that time. This data flow is input to the Collect and Verify Signal Violations.

signal_violation_parameters
This data flow is used within the Manage Traffic Enforcement function and contains information to allow signal violations to be configured. This may include the position relative to the traffic signal or the position of the intersection. This may change based on traffic and road conditions or policy decisions.

signal_violation_video_data
This data flow is used within the Manage Traffic function and contains a video image of sufficient fidelity to support signal enforcement applications. This image can be a by-product of a machine vision application or the end-product of a system dedicated to traffic surveillance.

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.

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 (measured in km/h up to 100) as computed from on-board sensors.

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_restriction_request
Internal Flow.

speed_violation_detection_data
This data flow contains the violation data including vehicle images, speed, time, and the posted speed limit at that time. This data flow is input to the Collect and Verify Speed Violations.

speed_violation_parameters
This data flow is used within the Manage Traffic Enforcement function and contains information to allow signal violations to be configured. This may include the position relative to the traffic signal or the position of the intersection. This may change based on traffic and road conditions or policy decisions.

speed_violation_video_image
This data flow is used within the Manage Traffic function and contains a video image of sufficient fidelity to support speed enforcement applications. This image can be a by-product of a machine vision application or the end-product of a system dedicated to traffic surveillance.

ssr_control_request
This data flow requests specialized control device activation at a grade crossing identified as a suitable for Standard Speed Rail

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

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

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 postal code) of a state Road Transport Department (RTD) office. This is one of the details that is used to obtain vehicle registration data from a vehicle license. It is stored as a string.

state_contact_computer
This data flow is used within the Manage Emergency Services function and contains the computer telephone number of a state Road Transport Department (RTD) office. This number provides direct but password and encrypted access to a computer within the RTD office, and is one of the details that is used to obtain vehicle registration data from a vehicle license. It is stored as a string of up to 10 characters.

state_contact_data
This data flow is used within the Manage Traffic function and contains the contact information for all state Road Transport Department (RTD) 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 Road Transport Department (RTD) office. These access points comprise addresses, telephone numbers, etc. through which the RTD 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 Road Transport Department (RTD) office. This is one of the details that is used to obtain vehicle registration data from a vehicle license. It is stored as a string of up to 30 characters.

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 Road Transport Department (RTD) office. This is one of the details that is used to obtain vehicle registration data from a vehicle license. It is stored as a string of up to 10 characters.

state_contact_identity
This data flow contains an identity code for a particular Provicial Road Transport Department (RTD) 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 Provicial, e.g. ON for Ontario, BC for British Columbia, etc.

state_contact_method
This data flow contains a character string that defines the method by which a state Road Transport Department (RTD) office shall be contacted with details of a vehicle license for which the corresponding registration data is required. The character string 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

Only one method should be specified for each agency, the processes responsible for passing the data being able to report failure to

state_contact_name
This data flow is used within the Manage Emergency Services function and contains the name of a state Road Transport Department (RTD) office.

This is one of the details that is used to obtain vehicle registration data from a vehicle license. It is stored as a string of up to 30 characters.

state_contact_phone

This data flow is used within the Manage Emergency Services function and contains the voice line telephone number of a state Road Transport Department (RTD) office. This is one of the details that is used to obtain vehicle registration data from a vehicle license. It is stored as a string of up to 10 characters.

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_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
+ dms_allocation.

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 is provided by the Plan System Deployment function. It 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
+ dms_allocation.

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

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.

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 crossingsignals, etc) 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_copy

This data flow contains a copy of data that is held in a store and is sent to other processes within the function when it is updated. The data flow consists of the following data item which is defined in its own DDE:

static_data_for_traffic_control.

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_traffic_control_update

This data flow contains data provided for loading into a store and is then sent to other processes within the function by another process. 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 up to six 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
+ 6{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_roadway_characteristics
This data flow contains the characteristics of a given roadway segment such as the speed limit setting defined for the link or specifics about the geometry of the link that may influence the settings made to adjust the speed limit.

station_id
This data flow contains the identifier of the sensor station. A sensor station may control a single sensor (environmental or traffic), or may control a number of sensors.

status_data_for_highways
This data flow contains the Highway Advisory Radio status for HARs, Dynamic Message Sign status for DMS, and 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:

har_status_for_highways
+ indicator_highway_requested_state
+ dms_status_for_highways.

status_data_for_roads
This data flow 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:

har_status_for_roads
+ indicator_input_state_for_roads

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 centre the steering and may be of a larger order of magnitude than the similar commands for lane following control.

stored_credit
This data flow is contains the value of the credit currently stored by the payment instrument.

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_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.

supplied_route

This data flow is used within the Provide Driver and Traveller Services function to provide details of a route selected by the traveller. It contains the following data items each of which is defined in its own DDE:

route
+ route_cost
+ traveller_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.

surveillance_control_data_for_maintenance
This data flow from the Control Roadway Maintenance Devices function is used to convey command information to the roadside devices to control camera movements or configuration information to assist in the collection of traffic and roadway condition data around work zones.

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.

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_data_inputs
This data flow is sent from the Manage Traffic function to the Provide Electronic Payment Service function and contains a request for parking and toll tag data. This data will be provided from units on-board vehicles and is used for traffic journey time calculations. The data flow consists of the following items each of which is defined in its own DDE:

parking_lot_tag_data_input
+ toll_tag_data_input.

tag_data_requests
This data flow is sent from the Manage Traffic function to the Provide Electronic Payment Service function and contains a request for parking and toll tag data. This data will be provided from units on-board vehicles and is used for traffic journey time calculations. The data flow consists of the following items each of which is defined in its own DDE:

parking_lot_tag_data_needed
+ toll_tag_data_needed.

tag_identity
This data flow is used by various ITS functions. It represents the identity number of a vehicle tag (16 digits) which can be used to various purposes, including preclearance from paying dues, taxes, and other commercial vehicles charges, or by a traveller or driver for payment of current or advanced tolls, fares, or parking lot charges, etc.

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_for_highways
This data flow contains the output of a Highway Advisory Radio (HAR) operating at the roadside on highways in the geographic and/or jurisdictional area(s) served by the function. This output, the HAR program, is broadcast to an existing communications device (eg. AM Radio) in a vehicle.

tbv_har_broadcast_for_roads
This data flow contains the output of a Highway Advisory Radio (HAR) operating at the roadside on roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. This output, the HAR program, is broadcast to an existing communications device (eg. 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.

tca_container_arrival_information
This data flow contains arrival information for a container. This information could include date/time of arrival, and location within the Intermodal Terminal.

tca_container_seal_status
This data flow contains an the id and status of an electronic seal which is on the intermodal container.

tca_manifest_data
This data flow contains an electronic manifest which is contained in some storage device on the intermodal container.

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

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.

tcm_c_and_m_archive_request
This data flow from the Manage Archived Data function to the Maintenance Management Subsystem 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:

c_and_m_archive_catalog_request
+ c_and_m_archive_data_request.

tcm_c_and_m_archive_status
This data flow is sent from the Manage Archived Data function to the Maintenance Management Subsystem. It is the status returned when C&M archive data is sent from the terminator to the Manage Archived Data function.

tcm_fault_data
This data flow is sent to the Maintenance Management Subsystem from the Manage Traffic function. It contains a report showing that a particular fault has been found in an indicator be either a local or a roadside process. This report acts as a request for the Maintenance Management Subsystem to effect repairs to restore the indicator to normal operation as soon as possible.

tcm_incident_confirmation
This data flow is sent to the Maintenance Management Subsystem from the Manage Traffic function to provide confirmation that work by the Maintenance Management Subsystem which has been recorded as a possible incident can take place at the

tcm_request_incident_change
This data flow is sent to the Maintenance Management Subsystem from the Manage Traffic function to request changes to the timing of work requested by the Maintenance Management Subsystem. This will have been provided as input to the function and been recorded as a possible incident.

tcm_resource_request
This data flow is used to request traffic management resources to include temporary signs, cones, and other assets that can be used to divert traffic, create detours, and otherwise mange traffic at the incident scene. It also includes requests for any other assets that may be needed to support incident clearance.

tcm_sensor_fault_data
This data flow is sent to the Maintenance Management Subsystem from the Manage Traffic function. It contains a report showing that a particular fault has been found in a sensor be either a local or a roadside process. This report acts as a request for the Maintenance Management Subsystem to effect repairs to restore the sensor to normal operation as soon as possible.

tcv_lock_tag_data_request
This data flow is sent to a commercial vehicle from the Manage Commercial Vehicles function. It contains a request for the provision of the current status of the lock tag that is used to control access to commercial vehicle cargoes that are being taken

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_container_transfer_location
This data flow provides information to the driver regarding the location within an intermodal facility for an intermodal transfer. It consists of the following data item which is defined in its own DDE:

location_identity.

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_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_intermodal_container_transport_assignment
This data flow contains dispatch instructions for the driver relating to the pickup and delivery of an intermodal container.

tcvd_intermodal_dispatch_route
This data flow contains the driver route and loading instructions related to a particular intermodal assignment provided 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.

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

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

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 sent to the commercial vehicle driver from the Manage Commercial Vehicle function and contains the request for the type of data to be input to be provided by the driver.

tcvm_confirm_enrollment_data_stored
This data flow is sent to the commercial vehicle 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.

tcvm_data_input_request
This data flow is sent to the commercial vehicle 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.

tcvm_driver_route_instructions
This data flow is sent to the commercial vehicle 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.

tcvm_enrollment_confirmation
This data flow is sent to the commercial vehicle 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.

tcvm_enrollment_payment_confirmation
This data flow is sent to the commercial vehicle 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

tcvm_intermodal_consignment_request
This data flow contains a request from the intermodal customer for services to handle shipping of a container or freight load.

tcvm_intermodal_container_status
This data flow contains both the status of the intermodal container as well as information associated with the cargo inside the container. The data flow consists of the following data items which are defined in their own DDEs:

cargo_data
+container_status.

tcvm_other_data_request
This data flow is sent to the commercial vehicle 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.

tcvm_output_tag_data
This data flow is sent to the commercial vehicle 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.

tcvm_preclearance_results
This data flow is sent to the commercial vehicle 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.

tcvm_roadside_activity_report
This data flow is sent to the commercial vehicle 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

tcvm_route_data
This data flow is sent to the commercial vehicle 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.

tcvoir_carrier_or_vehicle_information
This data flow contains information about a commercial vehicle or carrier and is based on data generated within the function in response to a previous request.

td_advisory_information
This data flow is sent to the driver from the Provide Driver and Traveller 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 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 Traveller 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 smart vehicle probes, etc.

td_dms_indication_for_highways
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 served by the function.

td_dms_indication_for_roads
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 road (surface street) served by the

td_driver_variable_speed_limit
This data flow represents the analog output of equipment at the roadside that notifies drivers of adjustments to the variable speed limits for a given segment in the roadway. This may be output via a dynamic message sign or via highway advisory radio

td_driving_guidance
This data flow is sent to the driver from the Provide Driver and Traveller 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_guidance_input_request
This data flow is sent to the driver from the Provide Driver and Traveller 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 Traveller 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 Traveller 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-signal_indication
+ td-lane_use_indication_for_highways + td-lane_use_indication_for_roads + td-ramp_state_indication
+ td-dms_indication_for_highways + td-dms_indication_for_roads.

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_other_services_parking_response
This data flow is sent to the driver from the Provide Driver and Traveller Services function and contains the response to the traveller'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 Traveller Services function and contains the response to the traveller's previously input request for additional services other than simple toll collection.

td_parking_lot_payment_confirmed
This data flow is sent to the driver from the Provide Driver and Traveller 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 Traveller 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 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 served by the function.

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 Traveller 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 Traveller Services function to indicate that the toll payment transaction is invalid.

tdca_disaster_emergency_plan
This data flow to the Disaster Command Authority contains the data provided by the local emergency management function to support an overall coordinated response to disaster type events. This item consists of the following data flows each of which is defined in its own DDE:

emergency_response_data_for_management
+ emergency_service_allocations
+ local_decision_support.

tdca_disaster_incident_data
This data flow to the Disaster Command Authority contains the incident information provided by the local emergency management function. This data will be provided to the Disaster Command Authority to support an overall coordinated response to disaster type events. This item consists of the following data flows each of which is defined in its own DDE:

incident_status_data
+ traffic_data_for_emergencies.

tdca_disaster_maintenance_response
This data flow to the Disaster Command Authority contains the response to requests for assets under the control of this Manage O&M function to be used during disaster situations. This data may include the schedule, availability, location, and status of the maintenance resources involved.

tdca_disaster_traffic_conditions_data
This data flow is sent to the Disaster Command Authority terminator and contains the traffic conditions of the roadway network managed by the function. This item is made up of the following data flows each of which is defined in its own DDE:

current_data_for_retrieval
+ long_term_data_for_retrieval
+ predictive_model_data_for_retrieval
+ sensor_output_data
+ roadway_environment_conditions.

tdca_medical_facility_availability
This data flow to the Disaster Command Authority terminator contains information about the type of medical facilities in an area and their availability.

tdca_transit_evacuation_status
This data flow to the Disaster Command Authority contains the status of public transport services being deployed to evacuate residents during a disaster.

tdca_transit_shelter_request
This data flow to the Disaster Command Authority contains a request from the Manage Transit function for the location and availability of the shelters being used during a disaster situation.

tdlmp_cargo_location
This data flow contains data about the location of the cargo and is sent to the Logistics Solutions Provider in response to a request for this information. The data flow consists of the following data item which is defined in its own DDEs:

cargo_location.

tdlmp_cargo_status
This data flow contains analog data about the status and location of the cargo and is sent to the Logistics Solutions Provider in response to a request for this information. The data flow consists of the following data items which are defined in their own DDEs:

cargo_measures
+cargo_monitoring_status.

tdlmp_container_availability
This data flow contains the status of a container. Is it available for pickup? Has it been shipped?.

tdlmp_container_delivery_confirmation
This data flow contains confirmation that an intermodal shipment has been delivered to an intermodal facility.

tdlmp_container_location
This data flow contains data about the location of the container and is sent to the Logistics Solutions
Provider in response to a request for this information. The data flow consists of the following data item which is defined in its own DDE:

tdlmp_container_location_response
This data flow contains data about the location of the container and is sent to the Logistics Solutions
Provider in response to a request for this information. The data flow consists of the following data item which is defined in its own DDE:

tdlmp_container_pickup_confirmation
This data flow contains a notice confirming that a container has been picked up at an intermodal facility and that control has been transferred to a shipping or drayage agency.

tdlmp_container_status
This data flow contains data about the status of the container (including any electronic seal on the container)and is sent to the Logistics Solutions Provider in response to a request for this information. The data flow consists of the following data items which are defined in their own DDEs:

container_measures
+container_monitoring_status.

tdlmp_container_status_response
This data flow provides the status of a container.It consists of the following data item which is defined in its own DDE:

container_status.

tdmv_cv_violation_identity_code
This data flow is sent to the Road Transport Department from the Manage Emergency Services function and contains the identity code of the ITS that is requesting the vehicle registration data so that a commercial vehicle credential filing or tax payment violation can be processed.

tdmv_cv_violation_vehicle_license
This data flow is sent to the Road Transport Department from the Manage Emergency Services function and contains the vehicle license for which the corresponding registration data is required so that a commercial vehicle credential filing or tax payment violation can be processed.

tdmv_parking_lot_violation_identity_code
This data flow is sent to the Road Transport Department 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 Road Transport Department 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 Road Transport Department 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 Road Transport Department 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 Road Transport Department 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 or pollution violation can be processed.

tdmv_traffic_violation_vehicle_license
This data flow is sent to the Road Transport Department 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 or pollution violation can be processed.

tea_cv_request_for_information
This data flow contains a request for information from an enforcement agency about a commercial carrier, vehicle or driver that may be the subject of prosecution for previous violations.

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_fare_collection_roadside_violation_data
This data flow is sent from the Manage Emergency Services function to the enforcement agency responsible for dealing with public transport 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 public transport 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 public transport fare collection violations. It contains information about a collection violation that has been detected by the Manage Transit function on-board the public transport 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_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_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, speed, signal and 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.

tep_decision_support
This data flow presents information to emergency response 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 response personnel from the Manage Emergency Services function and is the order for the emergency response personnel to proceed. It includes data on the emergency vehicle identity, the incident type and its location.

tep_event_confirmation
This data flow is sent from the Manage Traffic function to Event Organisers and is the confirmation that the previously submitted details of an event have been accepted as a possible incident.

tep_planned_event_confirmation
This data flow is sent to the Event Organisers terminator and is the confirmation that the previously submitted event data has been accepted.

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, 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_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.

tets_incident_acknowledge
This data flow acknowledges the receipt of incident information, requests additional information, and provides general information on response status.

tfcs_commercial_vehicle_identification
This data flow provides identification of a commercial vehicle to a freight consolidation station for the purpose of entrance and exit control, guidance, and safety monitoring.It consists of the following data item which is defined in its own DDE:

vehicle_identity.

tfcs_container_delivery_request
This data flow contains a request for permission to deliver a container to an Frieght Consolidation Station. The request is sent to the Station in advance of the actual container delivery in order to schedule to time of the delivery.

tfcs_container_pickup_confirmation
This data flow contains a notice confirming that a container has been picked up at an Frieght Consolidation Station for transfer to an Intermodal Terminal.

tfcs_entry_request
This data flow contains a request from a commercial vehicle to enter a freight consolidation station. This request could take the form of a vehicle ID, or a driver ID, or an entry code which has been previously provided to the vehicle.

tfcs_exit_request
This data flow contains a request from a commercial vehicle to exit a freight consolidation station. This request could take the form of a vehicle ID, a driver ID, or an entry code which has been previously provided to the vehicle.

tfcs_freight_consolidation_location_request
This data flow provides a request for location within a Freight Consolidation Station where a container should be taken for consolidation, or where the driver should go for a container pickup.

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_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 public transport 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 commuter 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 yellow services provider for payment to register as a supplier of these services and have details of them made available to travellers and commuters.

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 public transport fare. It is sent periodically, e.g. once per day, and requests payment of the public transport fare transactions since the previous request. The data flow will include the public transport 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_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_traveller_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 traveller for payment for the update of the digitized map data used as the background for displays of traffic and travel information on a traveller's personal device.

tfi_traveller_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 traveller for payment for the update of the navigable map database used for on-line personal guidance.

tfi_traveller_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 traveller for payment for other (yellow pages) services.

tfi_traveller_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 traveller for payment for the provision of rideshare services as part of a confirmed trip.

tga_quarterly_reports
This data flow is sent to the government agencies from the Manage Commercial Vehicles function and contains the quarterly reports of the data in the commercial vehicle roadside facility log.

tga_request_fees_updates
This data flow is sent to the government agencies from the Manage Commercial Vehicles function and contains a request for an update to the store of taxes and credential fees payable for operating commercial vehicles across states and through borders.

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

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).

tic_consignment_contract
This data flow is the electronic version of a consignment contract for a Commercial Company to transfer intermodal

tic_container_delivery_confirmation
This data flow is sent to the intermodal customer confirming the arrival and transfer of control of a container at a container handling facility, for example an intermodal terminal.

tic_shipment_status
This data flow provides the status of a shipment. It consists of the \following data item which is defined in its own DDE:

container_status.

tifd_freight_request
This data flow is a request for details of the movement of freight by means that may include methods other than commercial vehicles, e.g. heavy rail, air, sea, river, etc.

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.

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. Although 17 bits would be required to provide 1 second granularity, a 16 bit data element supports time accurate to within a few seconds and will be sufficient for all ITS applications.

time_period
This data flow is used within the Provide Driver and Traveller Services function to define the time period over which data about the use of a route segment is being provided. It is set to sixty (60) to enable data to be provided for the next sixty minutes (one

time_to_closing
This data flow provides the actual computed time to closing for an active grade crossing.

tispo_archive_status
This data flow is sent to the ISP system operator by the Provide Driver and Traveller Services function and contains the status received by Provide Driver and Traveller Services from the Manage Archived Data function after data was sent from Provide Driver and Traveller 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_broadcast_data_parameters_output
This data flow is sent to the ISP operator by the Provide Driver and Traveller Services function. It contains output of the parameters used in wide area information broadcast and is a result of an output request from the operator.

tispo_route_selection_parameters
This data is sent to the ISP Operator from the Provide Driver and Traveller Services function. It contains output of the parameters used by the route selection processes to best determine the routes used for travellers 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

tispo_trip_planning_parameters
This data is sent to the ISP Operator from the Provide Driver and Traveller Services function. It contains output of the parameters used by the trip planning processes to best determine the routes for travellers. The output may be in audible, visual or hardcopy form and will require no further processing to be understood by the operator.

tm_emergency_information
This data flow provides information about current incidents. It contains the following data item which is defined in its own DDE:

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_pollution_data
This data flow provides information on current pollution data in a form which will be readily understood by the Media.

tm_traffic_data
This data flow gives information on a particular current traffic situation in a form which will be readily understood by Media

tm_traffic_information
This data flow gives information on a particular current traffic situation in a form which will be readily understood by Media

tm_transit_emergency_information
This data flow provides information to the media that an emergency has occurred within a public transport vehicle. The location of the public transport vehicle and details of the emergency will be included in the information, subject to any constraints applied by the public transport 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 function and contains information about an incident that has occurred within part of the public transport operations network, e.g. public transport 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 public transport 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 public transport services. The information will enable the media to broadcast the details to travellers via such things as local radio, bulletin boards, etc.

tm_transit_vehicle_deviations
This data flow contains details of deviations from schedule of specific public transport vehicles, or routes. The information will enable the media to broadcast the details to travellers via such things as local radio, bulletin boards, etc.

tm_traveller_information_request
This data flow is sent to the media from the Provide Driver and Traveller Services function and contains a request for any information that the media has that might be of interest to travellers planning trips. This may include but not be limited to such things as special events. sports fixtures, etc.

tmc_identity
This data item is used within the Manage Traffic function and defines the logical identifier of an interfacing peer Traffic Management Centre (TMC) to share traffic data and system status. Other centres 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

tmc_list
This data flow is used within the Manage Traffic function and contains a list of Traffic Management Centres (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.

tmf_medical_facility_request
This data flow to the Medical Facility terminator contains a request for information about the type of medical facilities in an area and their availability.

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 priority, 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 priority, since in some cases it may be too late to stop the alternate mode traffic.

tmo_maintenance_operator_outputs
This data sent to the Maintenance Management Operator Terminator contains displays of status and results of commands from the operator and feedback from configuration changes made to control the operation of the Operations and Maintenance function.

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.

tmsp_maintenance_roadway_data
This data flow from the Manage O&M function to the Meteorological Service Provider contains information about local roadway conditions that have been detected from maintenance vehicles or personnel.

tmsp_traffic_roadway_data
This data flow from the Traffic Management function to the Meteorological Service Provider contains information about local roadway conditions that have been detected from maintenance vehicles or personnel.

tmtsp_air_services_request
This data flow is sent to the multimodal transportation service provider from the Provide Driver and Traveller Services function and contains a request for details of the regular and charter air services available to move travellers.

tmtsp_confirm_multimodal_service
This data flow is sent to the multimodal transportation service provider from the Provide Driver and Traveller Services function and contains a request for provision of an alternate mode service as part of a traveller's proposed trip.

tmtsp_ferry_services_request
This data flow is sent to the multimodal transportation service provider from the Provide Driver and Traveller Services function and contains a request for details of the sea and river ferry services available to move travellers.

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_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_rail_services_request
This data flow is sent to the multimodal transportation service provider from the Provide Driver and Traveller Services function and contains a request for details of the heavy rail services (i.e. those which do not form part of a public transport operation) available to move travellers.

tmtsp_service_request
This data flow contains a request for coordination of a multimodal transportation service provider's routes with that of a public transport agency for connetion protection on a route by route basis.

tmtsp_transit_arrival_changes
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 a public transport vehicle at the next modal interchange point. The data is intended to enable the coordination of services between the multimodal and regular public transport operations.

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 public transport vehicles at the modal interchange point(s). The data is
intended to enable the coordination of services between the multimodal and regular public transport 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 public transport services provided by the local public transport operation. The data is intended for use in the coordination of services between the multimodal and regular public transport operations.

tmup_emergency_route_map_request
This data flow is sent to the Mapping Service 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_map_archive_request

This data flow from the Manage Archived Data function to the Mapping Service 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 Mapping Service 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 Mapping Service Provider and contains a new set of static data or a set of public transport 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

tmup_request_demand_display_update

This data flow is sent to the Mapping Service 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_emergency_display_update

This data flow is sent to the Mapping Service 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 Mapping Service 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_other_routes_map_update

This data flow is sent to the Mapping Service Provider by the Provide Driver and Traveller Services function and contains a request for a new copy of the digitized map data used by the process that selects other, i.e. non-vehicle and non-public transport, routes for travellers.

tmup_request_pollution_display_update

This data flow is sent to the Mapping Service 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_route_selection_map_update

This data flow is sent to the Mapping Service Provider by the Provide Driver and Traveller Services function and contains a request for a new copy of the digitized map data used by the process that selects vehicle based routes for travellers and drivers.

tmup_request_traffic_display_update

This data flow is sent to the Mapping Service 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_traveller_display_update

This data flow is sent to the Mapping Service Provider from the Provide Driver and Traveller 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 travellers at kiosks. It must include the identity of the kiosk from which the request has originated so that the Mapping Service Provider can determine the map data to supply that will be relevant to the area in which the kiosk is located.

tmup_request_traveller_display_updates_FB

This data flow is sent to the Mapping Service Provider from the Provide Driver and Traveller Services function and contains a request for an update to the digitized map data used for displays that are output to the traveller at a traveller's personal device. It consists of the following data items each of which is defined in its own DDE:

tmup-request_traveller_personal_display_update
+ tmup-request_traveller_personal_display_update_cost
+ tmup-traveller_map_update_cost_request
+ tmup-traveller_map_update_request.

tmup_request_traveller_personal_display_update

This data flow is sent to the Mapping Service Provider from the Provide Driver and Traveller 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 traveller at a personal device. It consists of the following data items each of which is defined in its own DDE. The Mapping Service 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.

credit_identity

tmup_request_traveller_personal_display_update_cost

This data flow is sent to the Mapping Service Provider from the Provide Driver and Traveller 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 traveller personal device.

tmup_transit_map_update_request

This data flow is sent to the Mapping Service Provider from the Manage Transit function and contains a request for an update of the map database used for generating new public transport routes and as a background to displays of public transport services requested by the public transport fleet

tmup_traveller_map_update_cost_request

This data flow is sent to the Mapping Service Provider from the Provide Driver and Traveller Services function and contains a request for the cost of an update to the navigable map database used for providing traveller personal on-line guidance.

tmup_traveller_map_update_request

This data flow is sent to the Mapping Service Provider from the Provide Driver and Traveller Services function and contains a request for an update of the digitized map database used for guiding travellers on their selected routes.

tmup_vehicle_map_update_cost_request

This data flow is sent to the Mapping Service Provider from the Provide Driver and Traveller 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 Mapping Service Provider from the Provide Driver and Traveller Services function and contains a request for an update of the navigable map database used for providing in-vehicle on-line guidance.

tmv_maintenance_control

This data flow is sent to a maintenance vehicle from the Manage O&M function. It contains a set of inputs to the on-board equipment to support the operations of the vehicle such as plow deployment, salt dispersal, etc.

tmvd_maintenance_driver_data

This data flow is sent by the Manage O&M function to the maintenance vehicle driver. It contains information for the maintenance driver. This information is particular to this type of driver and is not relevant to drivers of other types of

tmvd_maintenance_driver_outputs

This data sent to the Maintenance Vehicle Driver terminator contains display outputs for the driver and configuration information to support control of the on-board systems.

To_Archived_Data_Administrator

This data flow to the Archive Data Administrator terminator contains management information concerning the status and security of the archive. This data flow consists of the following items each of which is defined in its own DDE:

tada-archive_administration_data.

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_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_for_roads
+ tbv-har_broadcast_for_highways
+ tbv-vehicle_security_system_commands.

To_C_and_M

This data flow is sent to the Maintenance Management Subsystem from the Manage Traffic function. It either confirms that the request for maintenance work sent in as a planned incident from the terminator has been accepted, or requests changes to the timing to minimize the impact on traffic flows, or contains reports about indicators that are faulty. It consists of the following data items each of which is defined in its own DDE:

tcm-fault_data
+ tcm-incident_confirmation
+ tcm-request_incident_change
+ tcm-resource_request
+ tcm-sensor_fault_data
+ tcm-c_and_m_archive_request
+ tcm-c_and_m_archive_status.

To_Commercial_Vehicle

This data flow is sent to a commercial vehicle from the Manage Commercial Vehicles function. It contains a request for data to be provided by the commercial vehicle for use within the function. The data flow consists of the following items each of which is defined in its own DDE:

tcv-lock_tag_data_request.

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 requests for further data to be input. 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-data_input_request
+ tcvd-data_request
+ tcvd-enrollment_confirmation
+ tcvd-enrollment_payment_confirmation
+ tcvd-general_pull_in_output
+ tcvd-inspection_results
+ tcvd-on_board_pull_in_output
+ 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

To_Commercial_Vehicle_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:

tcvm-confirm_enrollment_data_stored
+ tcvm-data_input_request
+ tcvm-driver_route_instructions
+ tcvm-enrollment_confirmation
+ tcvm-enrollment_payment_confirmation
+ tcvm-other_data_request
+ tcvm-output_tag_data
+ tcvm-preclearance_results
+ tcvm-roadside_activity_report
+ tcvm-route_data.

To_CVO_Information_Requestor

This data flow is sent from the commercial vehicle information requester to the Manage Commercial Vehicles function. It contains information produced in response to a previous data request. The data flow consists of the following item which is defined in its own DDE:

tcvoir-carrier_or_vehicle_information.

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_Disaster_Command_Authority

This data flow to the Disaster Command Authority terminator contains data and status information concerning the coordinated response to disasters. This data flow is made up of the following items each of which is defined in its own DDE:

tdca-disaster_traffic_conditions_data
+ tdca-disaster_incident_data
+ tdca-medical_facility_availability
+ tdca-disaster_emergency_plan.

To_DMV

This data flow is sent to the Road Transport Department 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-cv_violation_identity_code
+ tdmv-cv_violation_vehicle_license
+ 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.

To_Driver

This data flow is sent to the driver from the Provide Driver and Traveller Services, Manage Traffic and Provide Electronic Payment Services functions. It contains output from traffic indicators (intersection and pedestrian controllers, signs, etc.), the results of payment transactions and on-line vehicle guidance 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-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-toll_payment_confirmed
+ td-toll_payment_invalid.

To_Emergency_Personnel

This data flow is sent to the emergency response 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.

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_vehicle_dispatch_failure
+ teso-archive_status.

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 travellers, drivers and the general public, e.g. 911, E911, the new RESCUE service, etc. It consists of the following data item which is defined in its own DDE:

tets-incident_acknowledge.

To_Enforcement_Agency

This data flow is sent from the Manage Emergency Services or Commercial Vehicle Operations functions to the enforcement agency and contains information about violations that have been detected by many of the other functions within ITS and requests for information from the enforcement agency. 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-cv_violation_data
+ 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-cv_request_for_information.

To_Event_Promoters

This data flow is sent from the Manage Traffic function to the Event Organisers terminator and contains the following data item which is defined in its own DDE:

tep-event_confirmation
+ tep-planned_event_confirmation.

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 travellers 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-traveller_display_payment_request
+ tfi-traveller_map_payment_request
+ tfi-traveller_other_services_payments_request
+ tfi-traveller_rideshare_payment_request
+ tfi-archive_payment_request
+ tfi-archive_analysis_payment_request.

To_Govt_Admin

This data flow is sent to the government agencies from the Manage Commercial Vehicles function and contains requests for data and quarterly reports on activities at commercial vehicle roadside facilities. It consists of the following data items each of which is defined in its own DDE:

tga-quarterly_reports
+ tga-request_fees_updates.

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

tifd-freight_request
+ tifd-intermodal_archive_request
+ tifd-intermodal_archive_status.

To_Intermodal_Freight_Shipper

This data flow is a request for data about the services available to ship freight by means other than commercial vehicles, e.g. heavy rail, air, sea, river, etc.

To_ISP_Operator

This data flow is sent to the ISP operator by the Provide Driver and Traveller Services function. It contains output of the parameters used in wide area information broadcast, trip planning and route selection as requested by the operator. The data flow consists of the following items each of which is defined in its own DDE:

tispo-broadcast_data_parameters_output
+ tispo-route_selection_parameters
+ tispo-trip_planning_parameters
+ tispo-archive_status.

To_Maintenance_Operator

This data sent to the Maintenance Management Operator Terminator contains displays of status and results of commands from the operator and feedback from configuration changes made to control the operation of the Operations and Maintenance function. This DDE is made up of the following DDEs each of which is defined in its own DDE:

tmo-maintenance_operator_outputs.

To_Maintenance_Vehicle

This data flow is sent to a maintenance vehicle from the Manage O&M function. It contains a set of inputs to the on-board equipment to support the operations of the vehicle such as plow deployment, salt dispersal, etc. The data flow consists of the following items each of which is defined in its own DDE:

tmv-maintenance_vehicle_control.

To_Maintenance_Vehicle_Driver

This data sent to the Maintenance Vehicle Driver terminator contains display outputs for the driver and configuration information to support control of the on-board systems. This DDE is made up of the following DDEs each of which is defined in its own DDE:

To_Map_Update_Provider

This data flow is sent to the Mapping Service Provider to 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 traveller guidance, and as a source of data for trip planning and public transport route generation. The display map data is used as the background for the output of traffic, incident, public transport services and pollution data, the guidance data is used for the guidance of drivers and travellers on their selected routes, while the trip planning data is used for routes produced in response to traveller's trip requests. Static data is sent to the Mapping Service 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 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_other_routes_map_update
+ tmup-request_pollution_display_update
+ tmup-request_route_selection_map_update
+ tmup-request_traffic_display_update
+ tmup-request_traveller_display_update
+ tmup-request_traveller_display_updates_FB
+ 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.

To_Media

This data flow is sent by processes within the Manage Traffic, Manage Transit, and Manage Emergency functions to the Media System. It provides output of information on traffic flow conditions, traffic incidents, public transport incidents and other emergencies, plus a request for traveller 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_information
+ tm-transit_emergency_information
+ tm-transit_incident_information
+ tm-transit_schedule_deviations_to_media
+ tm-transit_vehicle_deviations
+ tm-traveller_information_request
+ tm-pollution_data.

To_Meteorological_Service_Provider

This data flow consists of data that is provided to the Meteorological Service Provider terminator from the Manage Traffic functions. This data flow contains the following items each of which is defined in its own DDE:

tmsp-maintenance_roadway_data.

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 Traveller Services function. It contains either a request for details of the services available to move travellers by means other than road vehicles, e.g. rail, air, sea, river, etc., or changes to the arrival time(s) of public transport services caused by schedule deviations The data flow consists of the following data items each of which is defined in its own DDE:

tmtsp-air_services_request
+ tmtsp-confirm_multimodal_service + tmtsp-ferry_services_request
+ tmtsp-rail_services_request
+ tmtsp-transit_arrival_changes
+ tmtsp-transit_arrival_deviations + tmtsp-transit_service_data
+ tmtsp-multimodal_archive_request + tmtsp-multimodal_archive_status.

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 requests for data from and data provided against previous requests. It consists of the following data items each of which is defined in its own DDE:

tocvas-commit_remote_enrollment
+ tocvas-data_table
+ tocvas-enrollment_confirmation
+ tocvas-enrollment_request
+ tocvas-provide_data.

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_EM

This data flow is sent to the other emergency centres by the Manage Emergency Services function to advise then 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:

toec-incident_data_FB
+ toec-mayday_emergency_data.

To_Other_ISP

This data flow is sent from the Provide Driver and Traveller Services function to an information service provider (ISP) In the case of request_data and data_supply this is for 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 is 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-data_supply
+ toisp-request_data
+ toisp-traffic_data_request
+ toisp-traffic_information
+ toisp-transit_information
+ toisp-transit_data_request.

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_TM
This data flow is used by the Manage Traffic function to send data to other traffic centres (TM) whose areas of operation are outside those of the local centre. It consists of the following data items each of which is defined in its own DDE:

totc-request_other_TMC_data_FB
+ totc-transfer_local_TMC_data_FB.

To_Other_TRM
This data flow is sent to the other PTM (other public transport centre) by the Manage Transit function and contains data for the other public transport centres. It consists of the following data item which is defined in its own DDE:

totrm-transit_services.

To_Other_Vehicle
This data flow is used by the provide Vehicle Monitoring and Control function to send data to other vehicles in a platoon when in platoon following mode of vehicle operation.

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-request_advanced_parking_payment
+ tpo-transaction_reports.

To_Payment_Instrument
This data flow is sent to the payment instrument by the Provide Electronic Payment Services function. It consists of two types of data, that which requests payment for a service from the credit stored by the instrument itself, and that which gives notice that payment for the service will charged to the credit identity provided by the instrument. The data flow consists of the following data items each of which is defined in its own DDE:

tpi-debited_fare_payment_at_roadside
+ tpi-debited_commercial_manager_payment
+ tpi-debited_payment_at_parking_lot
+ tpi-debited_payment_at_personal_device
+ tpi-debited_transit_user_payment_at_roadside
+ tpi-debited_transit_user_payment_at_vehicle
+ tpi-debited_traveller_payment_at_roadside
+ tpi-debited_payment_at_toll_plaza
+ tpi-debited_driver_payment_at_vehicle
+ tpi-debited_payment_on_transit_vehicle
+ tpi-request_fare_payment_at_roadside
+ tpi-request_fare_payment_on_transit_vehicle
+ tpi-request_payment_at_parking_lot
+ tpi-request_payment_at_toll_plaza.

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_Rail_Operations

This data flow is sent to a railroad operated operations centre (or centres) from an ITS Manage Traffic 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, 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 railside rail equipment. 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.

To_Toll_Administrator

This data flow is sent from the Provide Electronic Payment Services function to the toll administrator. It contains the requests for changes in 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:

tta-request_advanced_toll
+ tta-toll_price_changes_request
+ tta-transaction_reports
+ tta-archive_status.

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.

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, traffic and travel demand and pollution data 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_indicator_faults
+ ttop-demand_management_outputs_FB
+ ttop-incident_management_outputs_FB
+ ttop-pollution_data_display
+ ttop-traffic_control_information_display
+ ttop-video_image_output
+ ttop-resource_response
+ ttop-current_sensor_faults
+ ttop-wrong_way_detection
+ ttop-weather_information

To_Transit_Driver

This data flow is sent by the Manage Transit function to the public transport driver. It contains information for the public transport driver. This information is particular to this type of driver 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:

ttd-batch_mode_data_transfer_status
+ ttd-corrective_instructions
+ ttd-emergency_information
+ ttd-paratransit_information
+ ttd-request_fare_transaction_mode_set_up
+ ttd-route_assignments
+ ttd-transit_vehicle_schedule_deviations.

To_Transit_Fleet_Manager

This data flow is sent from the Manage Transit function and contains output to a public transport fleet manager. It consists of the following data items each of which is defined in its own DDE:

ttfm-coordination_request
+ ttfm-parameters
+ ttfm-paratransit_service
+ ttfm-passenger_loading_error
+ ttfm-proposed_corrections
+ ttfm-response_parameter_output
+ ttfm-transaction_reports
+ ttfm-transit_driver_information
+ ttfm-transit_services_output
+ ttfm-transit_vehicle_data
+ ttfm-transit_vehicle_maintenance_information
+ ttfm-technician_information.

To_Transit_Maintenance_Personnel

This data flow is sent from the Manage Transit function and contains the work schedule for a public transport maintenance engineer. It consists of the following data item which is defined in its own DDE:

ttmp-work_schedule.

To_Transit_System_Operators

This data flow is sent from the Manage Transit function to the public transport system operators. It contains information on potential incidents, video images and public transport 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:

ttso-emergency_request
+ ttso-media_parameters
+ ttso-potential_incidents_alarm
+ ttso-potential_security_problem
+ ttso-transaction_reports
+ ttso-transit_fare_output
+ ttso-video_image_data
+ ttso-archive_status.

To_Transit_User

This data flow is sent from the Manage Transit function and contains information for a traveller who is at the moment a commuter. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g. displays, dms, in-vehicle signage, or hardcopy (paper) output. It consists of the following data items each of which is defined in its own DDE:

ttu-advisory_information
+ ttu-vehicle_access_message
+ ttu-other_services_vehicle_confirmed + ttu-other_services_roadside_confirmed + ttu-roadside_access_message
+ ttu-roadside_payment_confirmed
+ ttu-transit_information
+ ttu-transit_vehicle_information
+ ttu-traveller_information
+ ttu-advisory_information
+ ttu-vehicle_payment_confirmed.

To_Traveller

This data flow is sent from the Provide Driver and Traveller Services function and contains information and guidance data requested by the traveller. 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 traveller, 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-emergency_message
+ tt-extra_trip_data_request
+ tt-guidance
+ tt-guidance_input_request
+ tt-guidance_map_update_response
+ tt-guidance_route_details
+ tt-emergency_response
+ tt-personal_extra_trip_data_request
+ tt-personal_trip_planning_responses
+ tt-trip_planning_responses.

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 railside 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 from the Manage Archived Data function to the National Meteorlogical Service Terminator contains the request for data to be imported into the archive and the status of the import process is returned to the National Meteorlogical 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.

To_Yellow_Pages_Service_Providers

This data flow is sent from the Provide Driver and Traveller Services function and contains requests for information needed by a traveller. It consists of the following data items each of which is defined in its own DDE:

typsp-provider_update_confirm
+ typsp-transaction_request
+ typsp-yellow_pages_info_request.

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_commit_remote_enrollment

This data flow is sent from to other commercial vehicle administration system by the Manage Commercial Vehicles function and contains a request for the commitment of the enrollment of the carrier, vehicle and driver that has been previously enrolled. This means that the local and any remote enrollment transactions were successful.

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_enrollment_confirmation

This data flow is sent to the other commercial vehicle administration system from the Manage Commercial Vehicles function and contains confirmation that enrollment of the carrier, vehicle and driver has been accepted.

tocvas_enrollment_request
This data flow is sent to the other commercial vehicle administration system from the Manage Commercial Vehicles function and contains a request for enrollment of the carrier, vehicle and driver.

tocvas_provide_data
This data flow is sent to the other commercial vehicle administration system from the Manage Commercial Vehicles function and contains a request for data about required taxes and credential fees to be provided.

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.

toec_emergency_centre_identity
This data flow is sent to the other emergency centres from the Manage Emergency Services function and contains the identity of the centre that is providing the local function. The details of this incident are contained in a parallel data flow. This data flow consists of the following data item which is defined in its own DDE:

emergency_centre_identity.

toec_incident_data_FB
This data flow is sent to the other emergency centres from the Manage Emergency Services function and contains data about an incident that has been reported in the area served by the local function and therefore outside their area of operation, plus the identity of the local function. It consists of the following data items each of which is defined in its own DDE:

toec-emergency_centre_identity
+ toec-incident_details
+ toec-incident_response_coordination.

toec_incident_details
This data flow is sent to the other emergency centres from the Manage Emergency Services function and contains data about an incident 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:

incident_location
+ incident_number
+ incident_description
+ incident_start_time
+ incident_duration
+ incident_severity
+ incident_type.

toec_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. 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

toec_mayday_emergency_data
This data flow is sent to the other emergency centres 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

toifms_shipping_coordination
This data flow contains the exchange of information between different Intermodal Freight Management centres regarding cargo or intermodal container movement. The information may involve unit ID, location, and status.

toisp_data_supply
This data flow contains a road data covering the local geographic area for use by the similar function in an ITS covering another geographic or jurisdictional area. It consists of the following data item which is defined in its own DDE:

road_data.

toisp_request_data
This data flow contains a request for road data covering another geographic area outside that covered by the local function.

toisp_traffic_data_request
This data flow contains a request (either as a subscription or as individual request) to another ISP for available traffic data to be provided. This allows an ISP to act as a wholesaler and send data from an Other ISP to the process.

toisp_traffic_information
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 as well as incident 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
+ current_data_for_retrieval
+ long_term_data_for_retrieval
+ planned_events
+ predictive_model_data_for_retrieval.

toisp_transit_data_request
This data flow contains a request (either as a subscription or as individual request) to another ISP for available public transport data to be provided. This allows an ISP to act as a wholesaler and send data from Other ISP to the process.

toisp_transit_information
This data flow is used to provide data on the current state of public transport operations (regarding both incidents and public transport vehicle schedule status) for use by the Other ISP (information service provider). It consists of the following items each of which is defined in its own DDE:

transit_running_data_for_advisory_output
+ transit_incident_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. Parking, public transport and traveller payment transaction information is sent to the archive via the operational functions for Manage Parking Lot State, Manage Transit, and Provide Driver and Traveller Services respectively. This data flow is made up of the following items each of which is defined in its own DDE:

toll_archive_catalog

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_tag_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 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 payment instrument being used by the driver. It is only sent when a credit identity has been previously received from the 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 payment instrument. It is only sent when a value of stored credit has been previously received from the payment instrument. The data flow consists of the following data item which is defined in its own DDE:

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 comprises an eight (8) alphanumeric character string enabling 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. The time is held as the number of seconds since a fixed reference point, from which the actual time and date can be easily computed.

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 travellers of all types, i.e. including drivers and commuters. 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 travellers. If sent to one (1) the change was accepted and if set to zero (0), the change was

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
+ vehicle_type_for_tolls.

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 to the Manage Traffic function and 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_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_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 toll segments on the road and highway network.

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_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
+ 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 Traveller 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 data items each of which is defined in its own DDE:

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_tag_data

This data flow is used within the Provide Electronic Payment Services function and contains the data that has been provided by the 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 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_tag_data_clear
This data flow is used within the Provide Electronic Payment Services function and contains the toll tag 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_tag_data.

toll_tag_data_collect
This data flow is used within the Provide Electronic Payment Services function and contains the toll tag 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_tag_data.

toll_tag_data_input
This data flow is sent from the Provide Electronic Payment Services function to the Manage Traffic function. It contains the data from a toll tag on-board a vehicle which will be used to calculate vehicle journey times for links in the road (surface street) and freeway network served by the Manage Traffic function. The data flow consists of the following data item which is defined in its own DDE:

toll_tag_data_needed
This data flow is used within the Manage Traffic and Provide Electronic Payment Services functions to request the output of the data from a parking lot tag that may be on-board a vehicle. This data will be used to calculate vehicle journey times for links in the road (surface street) and freeway network served by the Manage Traffic function.

toll_tag_data_request
This data flow is used within the Provide Electronic Payment Services function and contains a request for the toll tag data to be read from the store that is held on-board the vehicle.

toll_tag_data_store
This data store is used within the Provide Electronic Payment Services function and contains the toll tag 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_tag_data_update
This data flow is used within the Provide Electronic Payment Services function and contains the toll tag data that has been updated. The updated 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_tag_problem_message
This data flow is used to indicate that there was a problem while reading the vehicle tag-either read was unsuccessful, or there was a low balance on the tag. The message would provide an indication that the vehicle driver must contact the toll authority (or toll system operator) to resolve the problem.

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_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.

top_parking_coordination_data

This data flow is sent to the other parking management centre by the Manage Parking Lot state function and contains data from the other parking centres about services which have an interface into the area covered by services from the local centre.

tors_other_roadside_inputs

This data flow is sent to the Other Roadside terminator to provide inputs from the local surveillance devices to be output directly to signal and driver information dissemination devices that may be located nearby. This data flow allows for roadside devices to affect what is displayed on other roadside devices without having to be connected to a traffic management centre. This data flow consists of the following items each of which is defined in its own DDE:

road_user_protection_warning
+ roadway_warning_coordination + roadway_condition_coordination + environmental_coordination
+ traffic_sensor_coordination
+ speed_restriction_request.

tors_other_roadway_sensor_request

This data flow to the Other Roadside terminator is used to request sensor data from adjacent roadside equipment to use to generate localized traffic signals and displays.

totc_data_request

This data flow is sent to the other traffic centres by the Manage Traffic function and contains a request for data to be sent from another Traffic Management Centre (TMC) to the local TMC. It consists of the following data item which is defined in its own DDE:

other_TMC_data_request

totc_identity

This data flow is sent to the other traffic centres by the Manage Traffic function and contains the identity of the local Traffic Management Centre - TMC which is sending the accompanying data about traffic conditions in the geographic or jurisdictional area which is serves. The data flow consists of the following data item which is defined in its own DDE:

tmc_identity.

totc_request_other_TMC_data_FB

This data flow is sent to the other traffic centres (TM) from the Manage Traffic function and contains a request for data to be sent from one Traffic Management Centre (TMC), in this case a remote TMC, to another (the local) TMC. It consists of the following data items each of which is defined in its own DDE:

totc-data_request
+ totc-identity.

totc_traffic_control_and_status
This data flow is sent to the other traffic centres by the Manage Traffic function and contains traffic control and status data which is being transferred from one Traffic Management Centre (TMC) to one or more others. It consists of the following data items each of which is defined in its own DDE:

control_data_for_roads
+ status_data_for_roads
+ control_data_for_highways
+ status_data_for_highways.

totc_transfer_data
This data flow is sent to the other traffic centres by the Manage Traffic function and contains the data which is being transferred from one Traffic Management Centre (TMC) to one or more others. It consists of the following data items each of which is defined in its own DDE:

current_data
+ cv_incidents_for_other_TMC
+ emergency_data_for_other_TMC
+ long_term_data
+ permit_coordination
+ planned_events_local_data.

totc_transfer_local_TMC_data_FB
This data flow is sent to the other traffic centres (TM) from the Manage Traffic function and contains the data which is being transferred from the local Traffic Management Centre (TMC) to another, in this case a remote TMC. It consists of the following data items each of which is defined in its own DDE:

totc-identity
+ totc-transfer_data
+ totc-traffic_control_and_status.

totrm_individual_service_request
This data flow contains a request to a an Other Public Transport 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_service_request
This data flow contains a request to an Other Public Transport Management System for a general connection protection coordination where the lines of the two public transport agencies meet.

totrm_transit_services
This data flow is sent to the other PTM (other public transport centre) by the Manage Transit function and contains data for the other public transport centre about services provided by the local centre which have an interface into the area(s) covered by services from the

tourist_information
This data store is used within the Provide Driver and Traveller Services function to contains data for use by travellers when requesting tourist type information. It consists of the following data items each of which is defined in its own DDE:

yellow_pages_general_information
+ yellow_pages_specific_information
+ yellow_pages_transaction_information
+ incident_information.

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.

tpi_debited_commercial_manager_payment
This data flow is sent to the payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the cost of payment for commercial vehicle electronic credential filing and tax payment from the value of credit currently stored on the payment instrument being used by the commercial fleet manager.

tpi_debited_driver_payment_at_vehicle
This data flow is sent to the 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.

tpi_debited_fare_payment_at_roadside
This data flow is sent to the payment instrument by the Provide Electronic Payment Services function and contains confirmation that the cost of the current public transport fare incurred at the roadside, i.e. a public transport stop, plus if required the cost of advanced tolls, and/or parking lot charges, and/or public transport fares, will be debited to the credit identity provided by the payment instrument. The debit transaction will be carried out through the financial institution through other processes within the function.

tpi_debited_payment_at_parking_lot
This data flow is sent to the 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 public transport fares, will be debited to the credit identity provided by the payment instrument. The debit transaction will be carried out through the financial institution through other processes within the function.

tpi_debited_payment_at_personal_device
This data flow is sent to the 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 traveller for on-line personal guidance, or the cost of a traveller's confirmed trip from the value of credit currently stored by the payment instrument.

tpi_debited_payment_at_toll_plaza
This data flow is sent to the 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 public transport fares, will be debited to the credit identity provided by the payment instrument. The debit transaction will be carried out through the financial institution through other processes within the function.

tpi_debited_payment_on_transit_vehicle
This data flow is sent to the payment instrument by the Provide Electronic Payment Services function and contains confirmation that the cost of the current public transport fare incurred on-board a public transport vehicle, plus if required the cost of advanced tolls, and/or parking lot charges, and/or public transport fares, will be debited to the credit identity provided by the payment instrument. The debit transaction will be carried out through the financial institution through other processes within the function.

tpi_debited_transit_user_payment_at_roadside
This data flow is sent to the 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 payment instrument belonging being used by a commuter at the roadside, i.e. a public transport stop. The advanced payments may cover tolls, and/or parking lot charges, and/or public transport

tpi_debited_transit_user_payment_at_vehicle
This data flow is sent to the 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 payment instrument belonging being used by a commuter on-board a public transport vehicle. The advanced payments may cover tolls, and/or parking lot charges, and/or public transport fares.

tpi_debited_traveller_payment_at_roadside
This data flow is sent to the payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the cost of a traveller's confirmed trip from the value of credit currently stored by the payment instrument being used by the

tpi_request_fare_payment_at_roadside
This data flow is sent to the payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the total cost of the current public transport fare, or if required, that for advanced tolls, and/or parking lot charges and/or public transport fares from the credit currently stored by the payment instrument when used at the roadside, i.e. a public transport stop.

tpi_request_fare_payment_on_transit_vehicle
This data flow is sent to the payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the total cost of the current public transport fare, or if required, that for advanced tolls, and/or parking lot charges and/or public transport fares from the credit currently stored by the payment instrument when used on-board a transit vehicle.

tpi_request_payment_at_parking_lot
This data flow is sent to the 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 tolls, and/or parking lot charges and/or public transport fares from the credit currently stored by the payment instrument when used on-board a vehicle at a parking lot.

tpi_request_payment_at_toll_plaza
This data flow is sent to the 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, and/or parking lot charges and/or public transport fares from the credit currently stored by the payment instrument when used on-board a vehicle at a toll plaza.

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_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 railside 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.

wayside_status
+ hri_rail_alert.

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 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.

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

traffic_archive_request
+ traffic_archive_status.

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_device_status

This data flow is used within the Manage Traffic function to show any faults that have been found in roadside equipment. This may be in an indicator or in a traffic sensor. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_fault_data
+ vehicle_smart_probe_data_output_fault

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_advisory_request

This data flow is used by the Provide Driver and Traveller Interface facility within the Provide Driver and Traveller Services 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 data.

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 ahs 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
+ ahs_operational_data
+ ahs_operational_data_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_distribution_request

This data flow contains a request for particular data to be retrieved from the stores of long term, current, and predicted traffic data. The request is in response to a variety of requests received from ITS Users.

traffic_data_flow

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveller Services function. It contains traffic data either to be provided direct to travellers 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
+ link_data_for_guidance
+ traffic_data_for_advisory_output
+ traffic_data_for_guidance
+ traffic_data_for_kiosks
+ traffic_data_for_personal_devices
+ traffic_data_for_broadcast_to_kiosks
+ traffic_data_for_broadcast_to_personal_devices
+ traffic_data_for_ridesharing
+ prediction_data
+ planned_events
+ vehicle_signage_data
+ vehicle_smart_probe_data_output
+ traffic_data_request_for_archive.

traffic_data_for_advisories

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide advisory messages on both the current and predicted traffic flowing in the road and highway network served by the Manage Traffic function. Only data about those parts of the network that are relevant to the current location of the vehicle is included. This may involve several data
items, e.g. data about route segments, of one value, e.g. data from the nearest roadside pollution measurement point. The data flow consists of the following items each of which is defined in its own DDE:

tmc_identity
+ pollution_state_area_collection
+ pollution_state_roadside_collection
+ current_incident_data
+ list_size
+ list_size{route_segment_identity
+ route_segment_journey_time
+ link_identity
+ hov_lane_vehicle_count
+ parking_lot_identity
+ parking_lot_state}.

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_model_data_for_retrieval.

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
+ ahs_operational_data
+ ahs_operational_data_attributes.

traffic_data_for_broadcast

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide wide area broadcast messages on both the current and predicted traffic flowing in the road and highway network served by the Manage Traffic function. Only data that provides exceptional information, e.g. congestion, parking lot closed, etc. will be included. The data flow consists of the following items each of which is defined in its own DDE:

source_identity
+ area_air_quality_index
+ current_incident_data
+ current_roadway_network_data
+ link_state_data_for_broadcast
+ roadway_environment_conditions
+ parking_lot_storage_data.

traffic_data_for_broadcast_to_kiosks

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveller Services function. It is used to
provide broadcast data on the traffic flowing in the road network, plus that which is predicted to flow in the network for output at a kiosk. The flow consists of the following items each of which is defined in its own DDE:

source_identity
+ current_data_for_broadcast
+ predicted_data_for_broadcast.

traffic_data_for_broadcast_to_personal_devices

This data flow is used to provide broadcast data on the traffic flowing in the road network, plus that which is predicted to flow in the network for output to a traveller's personal device. This subset of the full data will depend on the route segment list included in the request. The flow consists of the following items each of which is defined in its own DDE:

source_identity
+ current_data_for_broadcast
+ predicted_data_for_broadcast.

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
+ predictive_model_data.

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
+ predictive_model_data
+ current_data.

traffic_data_for_distribution

This data flow is used within the Manage Traffic function. It 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 other ITS functions. 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

traffic_data_for_emergency_services

This data flow is used within the Manage Traffic function and contains current traffic information and roadway environmental conditions 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.

traffic_data_for_guidance

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

source_identity
+ current_data_for_retrieval
+ long_term_data_for_retrieval.

traffic_data_for_kiosks

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveller 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 output at a kiosk. The flow consists of the following items each of which is defined in its own DDE:

kiosk_identity
+ source_identity
+ current_data_for_broadcast
+ predicted_data_for_broadcast.

traffic_data_for_maintenance

This data flow is sent from the Process Traffic Data for Storage function to the Gather O&M Data function. It contains information about the traffic conditions in the network served by the function. The data flow consists of the following data items each of which is defined in its own DDE:

processed_data
+ sensor_output_data.

traffic_data_for_personal_devices

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 for output to a traveller's personal device. This subset of the full data will depend on the route segment list included in the request. The flow consists of the following items each of which is defined in its own DDE:

source_identity
+ current_data_for_broadcast
+ predicted_data_for_broadcast
+ traveller_identity.

traffic_data_for_ridesharing

This data flow is sent from the Manage Traffic function to the Ridesharing facility within the Provide Driver and Traveller 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 the following items each of which is defined in its own DDE:

tmc_identity
+ traffic_data_for_distribution.

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
+ disaster_advisory_data.

traffic_data_for_transit

This data flow contains information about environmental conditions, current incidents on the road, traffic flow state, and air quality 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
+ current_incidents_data
+ area_air_quality_index.

traffic_data_guidance_request

This data flow is used by the Provide Guidance and Trip Planning facility within the Provide Driver and Traveller Services 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 data.

traffic_data_kiosk_request

This data flow is sent by the Provide Driver and Traveller Services function to the Manage Traffic function and contains the request for the provision of traffic data for output at a kiosk. It consists of the following data items each of which is defined in its own DDE:

kiosk_identity

traffic_data_kiosk_request_for_archive

This data flow is sent from the Manage Traffic Function to the Provide Driver and Traveller Services function. It is used to provide data to the data archive about requests made for traffic data via a kiosk. It consists of the following data item which is defined in its own DDE:

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_personal_request
This data flow contains the request for the provision of traffic data for output at a traveller's personal device. It consists of the following data items each of which is defined in its own DDE:

traffic_data_request
+ traveller_identity.

traffic_data_personal_request_for_archive
This data flow is sent from the Manage Traffic Function to the Provide Driver and Traveller Services function. It is used to provide data to the data archive about requests made for traffic data via a traveller's personal device. It consists of the following data item which is defined in its own DDE:

traffic_data_personal_request.

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_request_for_archive
This data flow is sent from the Manage Traffic function to the Provide Driver and Traveller Services function. It is used to provide details of requests for traffic data made by travellers via kiosks or personal devices for release to the data archive. The data flow consists of the following data items each of which is defined in its own DDE:

traffic_data_personal_request_for_archive +
traffic_data_kiosk_request_for_archive.

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_data_ridesharing_request
This data flow is used by the Ridesharing facility within the Provide Driver and Traveller Services 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 data.

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_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_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.

traffic_impact_criteria
This data contains the criteria for calculating the impact an incident will have on traffic flows.

traffic_maintenance_collected_data
This data flow within Manage Traffic contains data from Provide Traffic Surveillance function to the Manage O&M Data function. This data item

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

sensor_fault_data_report
+ traffic_data_for_maintenance
+ incidents_for_maintenance.

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_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 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

traffic_operations_resource_request

This data flow is sent from the Manage Traffic function. It is 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_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_sensor_coordination
This data flow from the Process Traffic Sensor Data function contains data from the traffic sensors that is to be used to be displayed on adjacent traffic signal and driver information devices. This data may include speed data that could be used to warn drivers of reduced speeds ahead.

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_maintenance_data
This data flow is sent from the Process Sensor Data function to the Manage O&M function to provide surveillance information concerning traffic around work zones. It consists of the following items each of which is contained in its own DDE:

traffic_sensor_data
+ traffic_video_image.

traffic_sensor_maintenance_status
This data flow from the Process Sensor Data contains status indicators and fault reports from the roadside equipment being managed by the O&M function. It consists of the following items each of which is defined in its own DDE:

traffic_sensor_status
+ sensor_fault_data.

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_status
This data flow is used within the Manage Traffic function to report the status of a sensor. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment.

traffic_speed_limit_setting
This data flow contains the output of the Set Speed Limit process that is used by the Post Speed Limit process to actually generate the roadside warning to drivers as they approach a given segment of roadway.

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,

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_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 railside equipment to the HRI process fir 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 metres.

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 railside 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 metres, 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 usually with the Information and Service Providers Brokers or Financial Institutions, etc. by the traveller.

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 public transport 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 public transport 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_data
This data flow is used within the Provide Driver and Traveller Services function to provide traffic and travel advisory data to drivers and travellers in vehicles, including commuters. The advisory information includes data about traffic incidents and conditions, and public transport routes and schedules. It consists of the following data items each of which is defined in its own DDE:

traffic_data_for_advisories
+ planned_events_for_advisories
+ prediction_data_for_advisories
+ transit_running_data_for_advisories.

transit_advisory_data_request

This data flow is used within the Provide Driver and Traveller Services function to request that advisory data be output to a driver or a traveller in a public transport vehicle. The scope and public transport route number data will be provided by the driver or commuter, while the vehicle location will be provided automatically. The scope defines the data to be passed across this flow, and includes traffic advisory and stop annunciation information. The data flow consists of the following data items each of which is defined in its own DDE:

advisory_data_scope
+ vehicle_location_for_advisories
+ transit_route_number

transit_advisory_vehicle_information

This data flow is used within the Manage Transit function from data received from the Provide Driver and Traveller Information function. The data flow contains information about other services requested by a commuter on-board a public transport vehicle. These other services will be for what are called 'yellow pages' services, e.g. hotels, restaurants, theaters, etc.

transit_archive_catalog

This data flow is used to provide the description of the data contained in the collection of public transport 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 public transport passenger operational data, public transport deployment data, commuter payment data, public transport emergency data, public transport 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_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 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_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 public transport 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 public transport route. This speed value is that which the public transport driver must achieve between successive public transport stops in order to be compliant with the revised public transport schedule. These corrections are intended to enable the public transport 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 public transport 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 commuters can use such things as alternative mode transfer facilities. The corrections are intended to enable the public transport vehicles on a particular route to return to their scheduled service for that route.

transit_conditions_advisories_request
This data flow is sent from the Provide Driver and Traveller Services function to the Manage Transit function. It is used to request details of the current state of public transport vehicle operations for use in the preparation of data for driver and traveller

transit_conditions_demand_request
This data flow is sent from the Provide Driver and Traveller Services function to the Manage Traffic function. It is used to request details of the current state of public transport vehicle operations for use in demand forecasting calculations carried out by the

transit_conditions_guidance_request
This data flow is sent from the Provide Driver and Traveller Services function to the Manage Transit function. It is used to request details of the current state of public transport vehicle operations for use in the preparation of data for on-line driver and traveller

transit_confirmation_flag
This data flow is used within the Manage Transit function to indicate that a paratransit service is to be used (set to 1) or not (set

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 public transport 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 Traveller Services function and contains information that is being provided in response to requests from drivers or travellers. It consists of the following data items each of which is defined in its own DDE:

paratransit_personal_schedule
+ transit_incident_data
+ transit_running_data_for_advisory_output + transit_running_data_for_guidance
+ transit_services_for_advisory_data
+ transit_services_for_guidance
+ transit_services_for_kiosks
+ transit_services_for_personal_devices
+ transit_deviations_for_broadcast_to_kiosks
+ transit_deviations_for_broadcast_to_personal_devices
+ transit_deviations_for_kiosks
+ transit_deviations_for_personal_devices
+ transit_deviations_personal_request_for_archive
+ transit_deviation_kiosk_request_for_archive.

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, public transport routes and schedule data, public transport fares, maintenance and personnel data, public transport 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
+ transit_user_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_driver_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_archive

This data flow is sent from the Manage Transit function to the Manage Archived Data function. It is used to provide details of public transport 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
+ transit_user_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_driver_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_deviation_data_received

This data flow is used within the Manage Transit function and contains an indication that new data about public transport service deviations has been received and is now in the local store of this data. The process(es) receiving this data is(are) expected to take action automatically to output the new data to other functions that are outside the scope of the ITS.

transit_deviation_kiosk_request

This data flow is sent by the Provide Driver and Traveller Services function to the Manage Transit function and is a request for data on current public transport service deviations for output to a kiosk. It consists of the following data items each of which is defined in its own DDE:

kiosk_identity

transit_deviation_kiosk_request_for_archive

This data flow is sent by the Manage Transit function to the Provide Driver and Traveller Services function. It is used to provide data to the data archive about requests made for current public transport service deviations via a kiosk. The data flow consists of the following data item which is defined in its own DDE:

transit_deviation_kiosk_request.

transit_deviations_for_broadcast_to_kiosks
This data flow is sent by the Manage Transit function to the Provide Driver and Traveller Services function and contains current public transport service deviations for broadcast to a kiosk. It consists of the following data items each of which is defined in its own DDE:

transit_deviations_for_broadcast_to_personal_devices
This data flow contains current public transport service deviations for a particular route. This data will bebroadcast to a traveller's personal device. It 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_segment_number}.

transit_deviations_for_kiosks
This data flow is sent by the Manage Transit function to the Provide Driver and Traveller Services function and contains current public transport service deviations for output to a kiosk. It consists of the following data items each of which is defined in its own DDE:

kiosk_identity
+ transit_vehicle_schedule_deviations.

transit_deviations_for_personal_devices
This data flow contains current public transport service deviations for a particular route. This data will be output to a traveller's personal device. It consists of the following data items each of which is defined in its own DDE:

traveller_identity
+ list_size
+ list_size{transit_vehicle_identity
+ transit_vehicle_achieved_time
+ transit_route_segment_number}.

transit_deviations_personal_request
This data flow is sent by the Provide Driver and Traveller Services function to the Manage Transit function and is a request for data on current public transport service deviations for output to a traveller's personal device. When a portable device is being used by the traveller. The request can be modified so that only the data for a public transport route specified by the traveller from the portable device is requested. The data flow consists of the following data items each of which is defined in its own DDE:

traveller_identity
+ transit_vehicle_deviation_request
+ transit_route_number.

transit_deviations_personal_request_for_archive
This data flow is sent by the Manage Transit function to the Provide Driver and Traveller Services function. It is used to provide data to the data archive about requests made for current public transport service deviations via a traveller's personal device. Both portable, customized data and non-portable requests are included. The data flow consists of the following data items which is defined in its own DDE:

transit_disaster_request
This data flow within the Manage Transit function contains a request for coordination between the public transport function and the Disaster Command Authority in the event of a disaster requiring special public transport related assistance. This data may include a request for public transport vehicles to be used to support evacuations or movement of people to shelters.

transit_disaster_response
This data flow within the Manage Transit function contains the status of coordination activities supported by the function during a disaster. This may include status on evacuation procedures or the status of public transport vehicles used to ferry residents to shelters.

transit_driver_availability
This data flow is used within the Manage Transit function and contains information that represents the public transport driver's current, future hourly, daily weekly and monthly calendar availability. The data will be stored for future access by the public transport fleet

transit_driver_availability_considerations

This data flow is used within the Manage Transit function and contains information that is used in assessing the public transport driver's availability for work. It will comprise details of such things as the driver's vacation status, health status, accumulated work hours, and any laws and policies that will affect the driver. The data is used in assessing the driver's eligibility for future work

transit_driver_availability_data

This data flow is used within the Manage Transit function and contains information that represents the public transport driver's current, future hourly, daily weekly and monthly calendar availability. The data will be used in the assessment of the driver's eligibility for future work assignments.

transit_driver_consideration_inputs

This data flow is used within the Manage Transit function and contains updates to the consideration data, plus previous route assignments, used to assess a driver's availability for future work, that have been provided by the driver. The data flow consists of the following data items each of which is defined in its own DDE:

transit_driver_identity
+ transit_driver_availability_considerations
+ transit_driver_route_details.

transit_driver_consideration_updates

This data flow is used within the Manage Transit function and contains updates to the consideration data used to assess a driver's availability for future work, that have been provided by the public transport fleet manager. The data flow consists of the following data items each of which is defined in its own DDE:

transit_driver_identity
+ transit_driver_cost_effectiveness_considerations
+ transit_driver_eligibility_considerations
+ transit_driver_performance_considerations
+ transit_driver_route_assignment_considerations.

transit_driver_cost_effectiveness

This data flow is used within the Manage Transit function and contains the public transport driver's cost effectiveness and is used primarily to reduce overtime pay and to assign higher paid drivers to the more demanding route assignments. The data will be stored for future access by the public transport fleet manager.

transit_driver_cost_effectiveness_considerations

This data flow is used within the Manage Transit function and contains information that is used in assessing the public transport driver's cost effectiveness. It will contain such things as the driver's accumulated work hours, and hourly wage. The data is used in assessing the driver's eligibility for future work assignments.

transit_driver_cost_effectiveness_data

This data flow is used within the Manage Transit function and contains the public transport driver's cost effectiveness and is used primarily to reduce overtime pay and to assign higher paid drivers to the more demanding route assignments. The data will be used in the assessment of the driver's eligibility for future work assignments.

transit_driver_data_for_archive

This data flow is used within the Manage Transit function. It contains data about public transport drivers and their route assignments. The data flow consists of the following data items each of which is defined in its own DDE:

transit_driver_info_for_archive
+ transit_route_assign_for_archive.

transit_driver_details
This data flow is used within the Manage Transit function and contains data about an individual public transport driver. The data is used to assess the driver's eligibility for future work assignments and as a source of data about drivers for the public transport fleet manager. It consists of the following data items each of which is defined in its own DDE:

transit_driver_identity
+ transit_driver_availability_considerations
+ transit_driver_availability
+ transit_driver_cost_effectiveness_considerations
+ transit_driver_cost_effectiveness
+ transit_driver_eligibility_considerations
+ transit_driver_eligibility
+ transit_driver_performance_considerations
+ transit_driver_performance
+ transit_driver_route_details
+ transit_driver_route_assignment_considerations.

transit_driver_eligibility
This data flow is used within the Manage Transit function and contains the public transport driver's eligibility to perform a route assignments. The data will be stored for future access by the public transport fleet manager.

transit_driver_eligibility_considerations
This data flow is used within the Manage Transit function and contains information that is used in assessing the public transport driver's eligibility. It will contain such things as a list of driver certifications, experience, and education. The data is used in assessing the driver's eligibility for future work assignments.

transit_driver_eligibility_data
This data flow is used within the Manage Transit function and contains the public transport driver's eligibility to perform a route assignment. The data will be used in the allocation of future work assignments for the driver.

transit_driver_emergency_acknowledge
This data flow is used within the Manage Transit function and contains an acknowledgment that the previous driver emergency request has been received and is being processed.

transit_driver_emergency_request
This data flow is used within the Manage Transit function and contains a request for action because a public transport driver has identified an emergency situation on-board or close to a public transport vehicle. Details of the public transport vehicle identity and location are provided through accompanying data flows.

transit_driver_identity
This data flow is used within the Manage Transit function and contains the identity of an individual public transport driver. It is used by processes in the Manage Transit function that allocate work assignments to drivers.

transit_driver_info_for_archive
This data flow is used within the Manage Transit function. It contains data from the store of public transport driver information that has been previously requested by the public transport fleet manager and may relate to one or more of the public transport drivers. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_driver_details}.

transit_driver_information
This data store is used within the Manage Transit function and contains data about the public transport drivers. The data is used to allocate future work assignments to drivers. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_driver_details}.

transit_driver_information_output

This data flow is used within the Manage Transit function. It contains data from the store of public transport driver information that has been previously requested by the public transport fleet manager and may relate to one or more of the public transport drivers. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_driver_details}.

transit_driver_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 public transport drivers. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_driver_identity}.

transit_driver_performance

This data flow is used within the Manage Transit function and contains a public transport driver's past and current route assignment performance. The data will be stored for future access by the public transport fleet manager.

transit_driver_performance_considerations

This data flow is used within the Manage Transit function and contains information that is used in assessing a public transport driver's performance in carrying out previously assigned work. It will contain such things as details of any moving violations and accidents in which the driver has been involved, plus comments from supervisors on the driver's performance. The data will be used in deciding the allocation of future work to the driver.

transit_driver_performance_data

This data flow is used within the Manage Transit function and contains a public transport driver's past and current route assignment performance. The data will be used in the assessment of the driver's eligibility for future work assignments.

transit_driver_route_assignment_considerations

This data flow is used within the Manage Transit function and contains information that is used in making driver route assignments. It will contain such things as details of any driver route preferences and the driver's seniority. The data will be used in deciding the allocation of future work to the driver.

transit_driver_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 public transport drivers. 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_drivers
+ transit_services_for_transit_drivers
+ list_size
+ list_size{transit_vehicle_identity
+ transit_vehicle_availability}.

transit_driver_route_details

This data flow is used within the Manage Transit function and contains the assignment of the public transport driver to a previous public transport route and schedule. This data will be used to provide the driver with new work assignments.

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 public transport 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

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 item which is defined in its own DDE:

transit_incident_coordination_data.

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 public transport 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 public transport 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_emergency_details
+ transit_media_emergency_interface_parameters.

transit_emergency_details

This data flow is used within the Manage Transit function and contains details of emergency requests that have been input on-board a public transport vehicle. It consists of the following data items each of which is defined in its own DDE:

transit_driver_emergency_request
+ transit_user_emergency_request
+ transit_vehicle_location.

transit_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 public transport vehicle. It consists of the following data items each of which is defined in its own DDE:

transit_driver_emergency_request
+ transit_user_emergency_request
+ transit_vehicle_location.

transit_emergency_request

This data flow is used within the Provide Driver and Traveller Services and the Manage Transit functions to carry data about an emergency situation that applies to a traveller in the public transport system. It contains the following data items each of which is defined in its own DDE:

traveller_identity
+ traveller_location_for_emergencies.

transit_fare

This data flow is used within the Manage Transit function and contains the actual cost for the commuter to travel over a route in the public transport network, i.e. the cost of going from a particular origin on a public transport route to a particular destination on (possibly another) public transport route.

transit_fare_collection_data

This data item is used within the Manage Transit function. It contains data about the public transport 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
+ transit_user_category
+ transit_user_journey_end

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 public transport services. It consists of the following item which is defined in its own DDE:

list_size
+ 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 public transport fare price data to be provided from the store that is being used to calculate public transport fares.

transit_fare_details
This data flow is sent from the Provide Electronic Payment Services function to the Manage Traffic function and contains details of the fares being currently charged for public transport 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
+ transit_user_category

transit_fare_direct_details
This data flow contains details of the fares being currently charged for public transport 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
+ transit_user_category
+ transit_route_use_time}.

transit_fare_direct_request
This data flow contains a request for the current prices being charged for public transport fares.

transit_fare_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 public transport fares.

transit_fare_transaction_records
This data store is used by processes in the Provide Electronic Payment Services function and contains records of public transport 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 public transport 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 public transport 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
+ transit_user_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 public transport 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 public transport fares for use in fare processing on-board the public transport vehicle. It consists of the following data item which is defined in its own DDE:

transit_fares.

transit_fares_for_vehicle
This data store is used within the Manage Transit function and contains the current public transport fares for use in fare processing on-board the public transport 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 public transport fleet manager 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 public transport 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 public transport 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 public transport 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 public transport 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 public transport 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 public transport operations network, e.g. public transport 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 public transport 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 public transport 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_incident_extra_data
This data flow is used within the Manage Transit function and contains details of any additional data relevant to a public transport incident which the public transport system operator requires to be output. This data is in addition to that specified in the accompanying public transport incident required action data flow.

transit_incident_info_for_archive
This data flow is used within the Manage Transit function and contains information about an incident in the public transport operations network to be stored for later use. It consists of the following data items each of which is defined in its own DDE:

transit_incident_details
+ transit_operator_security_action
+ emergency_request_transit_details
+ secure_area_surveillance_information
+ transit_media_incident_interface_parameters.

transit_incident_information
This data flow is used within the Manage Transit function and contains information about an incident in the public transport 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_incident_location
This data flow is used within the Manage Transit function and contains the location of an incident that has occurred in the public transport operations network. The location will be something other than a public transport 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 public transport system operator. The action(s) is(are) to be taken by the receiving process.

transit_information_request
This data flow is used within the Manage Transit function and requests details of the current state of public transport 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 public transport vehicles, requests for preemption at signalized intersections and the response to requests for changes in public transport services that have been made to help redistribute traveller demand. It consists of the following data items each of which is defined in its own DDE:

parking_lot_transit_response
+ transit_roadway_overall_priority
+ transit_vehicle_roadway_preemptions + transit_ramp_overall_priority
+ transit_services_for_demand
+ transit_services_changes_response + transit_running_data_for_demand

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 public transport journey is to be made by a traveller as a commuter 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_archive

This data flow is used within the Manage Transit function. It contains information about vehicle maintenance and technician data, and other information about public transport vehicles for use by processes within the schedule public transport vehicle maintenance 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_media_emergency_information

This data flow is used within the Manage Transit function and contains information about an emergency that has been detected on board a public transport vehicle following input from a commuter or public transport vehicle driver. The data is in its raw form and requires processing before it can be output to the media. It consists of the following data items each of which is defined in its own DDE:

transit_driver_emergency_request
+ transit_media_emergency_interface_parameters
+ transit_user_emergency_request
+ transit_vehicle_location.

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 public transport operations network. It covers incidents to both commuters and vehicles and is principally concerned with emergencies that have taken place on-board public transport vehicles. The data in the flow is set up by the public transport 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_information

This data flow is used within the Manage Transit function and contains information about an incident that has been automatically detected at a public transport facility. The data is in its raw form and requires processing before it can be output to the media. It consists of the following data items each of which is defined in its own DDE:

transit_incident_details
+ transit_incident_extra_data
+ transit_incident_location
+ transit_media_incident_interface_parameters.

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 public transport facilities. It covers incidents to commuters, and may have taken place at a public transport stop or in some other public transport operating facility. The data in the flow is set up by the public transport 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 store 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 public transport operations network. The data store 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 Traveller Services function and is used to store details of all public transport routes which are currently in use by travellers.

transit_operational_data

This data store is used within the Manage Transit function and contains operational data which can be used to generate public transport routes and schedules. It 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_vehicle_operational_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 public transport 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_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 public transport vehicle or at a public transport facility following input from a commuter or public transport vehicle driver. The data is for output to the public transport 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 public transport operations area. This incident may be a potential security problem, but it is up to the public transport 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
+ transit_user_incident_input
+ transit_video_camera_image.

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 public transport 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 public transport system operator has requested having being presented with details of an incident within the public transport 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_video_camera_command.

transit_passenger_capacities
This data flow is used within the Manage Transit function and provides the capacity of each public transport vehicle as a number of

transit_passenger_numbers
This data flow contains the number of passengers (commuters) carried by a public transport vehicle on each of its public transport route segments. This data is measured by counting the numbers of passengers that pass the public transport fare collection point on a public transport vehicle, and is determined independently of any passenger counting process. The size has been set to enable the number of passengers on a public transport vehicle to reach its maximum, which may be possible with multi-carriage units of the type employed on some metro and

transit_passenger_operational_data
This data flow contains information about the number of passengers (commuters) who have used public transport 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 public transport stop and the other showing the number of passengers on-board public transport 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
+ transit_user_advanced_payment_at_roadside
+ transit_user_advanced_payment_on_vehicle
+ transit_user_roadside_image
+ transit_user_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_transit_user_roadside_image
+ request_transit_user_vehicle_image
+ transit_roadside_fare_data
+ transit_vehicle_fare_data
+ transit_user_roadside_credit_identity
+ transit_user_roadside_tag_data
+ transit_user_vehicle_credit_identity
+ transit_user_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 public transport fare and user payment transactions. It consists of the following data items each of which is defined in its own DDE:

transit_user_payments_transactions

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 public transport 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_preplanned_responses_for_incidents
This 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
This data flow contains the location of the public transport vehicle on each part of its route, i.e., each public transport route segment. This data will be used along with other probe data to calculate the link speed or travel time. Public transport probe information can be provided by fixed route, flexibly routed, and para-transit 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_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 public transport 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 public transport 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:

transit_requests
This data flow is sent from the Provide Driver and Traveller Services function to the Manage Transit function and contains requests for information about public transport services or a request for a paratransit service, plus vehicle location data and commuter tag data. It consists of the following data items each of which is defined in its own DDE:

paratransit_service_confirmation
+ paratransit_trip_request
+ transit_conditions_advisories_request
+ transit_conditions_guidance_request
+ transit_deviation_kiosk_request
+ transit_deviations_personal_request
+ transit_services_advisories_request
+ transit_services_guidance_request
+ transit_services_kiosk_request
+ transit_services_personal_request
+ traveller_transit_profile
+ vehicle_location_for_transit.

transit_response_to_incident
This data flow is used within the Manage Transit function and contains details of what public transport 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 public transport 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 public transport 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 public transport fare transactions that have been processed at a roadside location, i.e. a public transport stop, as a result of commuters passing through the location to board public transport 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 public transport fare roadside collection point. This is usually a public transport stop, although by using a separate identity definition the fare collection points can be in other places such as shopping malls, tourist attractions, travel

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 public transport services. It is for use in calculating fares that are to be paid by commuters at the roadside, i.e. a public transport 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 public transport fare has been deducted successfully from the credit currently stored by the commuter's payment instrument. The data flow is used when the commuter is paying for the public transport 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 public transport fare will be deducted by the financial institution from the credit identity previously provided by the payment instrument being used by the commuter on-board a public transport vehicle. It is only sent when a credit identity has been previously received from the 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 public transport fare to be deducted from the credit currently stored by the commuter's payment instrument, when it is being used at the roadside, i.e. a public transport stop. It is only sent when a value of stored credit has been previously received from the 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 public transport 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 the number of commuters (passengers) who in a twenty four hour period, have passed through a public transport 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 public transport services. The data flow consists of the following data items each of which is defined in its own DDE:

transit_roadside_fare_collection_data
+ transit_route_stop_number
+ transit_user_journey_start
+ 24{list_size
+ list_size{transit_passenger_numbers
+ transit_user_journey_end
+ transit_route_use_time
+ transit_user_category}}.

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 public transport 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 public transport 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 Traveller Services function and contains data for a special form of 'route' which only uses public transport 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 public transport drivers. 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_drivers
+ transit_services_for_transit_drivers
+ 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 public transport route. These corrections are intended to enable the public transport 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 travellers 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 public transport route to be used by a traveller (advanced fares) or commuter. The destination will be defined as the name of a public transport stop and provided as a string of up to twenty (20) alphanumeric characters. This 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 Traveller 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 commuter fares for all the public transport routes operated by the public transport 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 public transport route. This is stored as a four (4) character string to enable the use of alphanumeric characters so that the route number may be the same as that seen by commuters, 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 public transport 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 public transport vehicles for each public transport 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 public transport route to be used by a traveller (advanced fares) or commuter. The origin will be defined as the name of a public transport stop and provided as a string of up to twenty (20) alphanumeric characters. This 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 public transport 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 public transport route segment. It can only be used in association with the segment number, the category of the commuter 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 public transport 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 public transport route segment is defined as the link between two successive public transport 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 public transport route segments that make up a particular public transport route, plus the cost to a commuter 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
+ 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 public transport route segment within the public transport 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 public transport stops that make up a particular public transport route. 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_route_stop_list

This data flow is used within the Manage Transit function and is a list of the public transport stops that make up a particular public transport route and the time at which services on the route will arrive at each stop. 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 public transport stop on a public transport route. The identity of the route number that goes with the stop is carried in an accompanying data flow.

transit_route_use_time

This data flow is used within the Manage Transit function and contains the time at which the associated public transport 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 public transport 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 public transport vehicle route and the routes of the most popular demand responsive public transport 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 public transport 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
+ 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 public transport routes.

transit_routes_updates

This data flow is used within the Manage Transit function and contains details of each public transport vehicle route calculated at the request of the public transport fleet manager using previously defined parameters and current public transport 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_advisories

This data flow is used within the Provide Driver and Traveller Services function. It contains data on the current state of public transport operations for use in driver and commuter advisory output messages. The messages will only contain data that is relevant to the vehicle's current location. The data flow consists of the following items each of which is defined in its own DDE:

transit_route_number
+ transit_vehicle_identity
+ list_size
+ list_size{transit_route_segment_number
+ transit_stop_scheduled_time
+ transit_vehicle_achieved_time
+ transit_vehicle_time}.

transit_running_data_for_advisory_output

This data flow is sent from the Manage Transit function to the Provide Driver and Traveller Services function. It is used to provide data on the current state of public transport operation for use in driver and traveller advisories and consists of the following items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_passenger_loading
+ transit_vehicle_running_times
+ transit_vehicle_schedule_deviations
+ transit_vehicle_eta}.

transit_running_data_for_broadcast

This data flow is used within the Provide Driver and Traveller Services function. It contains data on the current state of public transport operations for use in driver and commuter wide area broadcast messages. The messages will only contain data that is unusual, e.g. service suspension, temporary revised timings, etc. The data flow consists of the following items each of which is defined in its own DDE:

transit_route_number
+ transit_vehicle_identity
+ list_size
+ list_size{transit_route_segment_number
+ transit_stop_scheduled_time
+ transit_vehicle_achieved_time

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 public transport 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_running_data_for_guidance

This data flow is sent from the Manage Transit function to the Provide Driver and Traveller Services function. It is used to provide data on the current state of public transport operation for use in preparing driver and traveller on-line guidance data and consists of the following items each of which is defined in its own DDE:

transit_vehicle_passenger_loading
+ transit_vehicle_running_times
+ transit_vehicle_schedule_deviations
+ transit_vehicle_eta.

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 public transport vehicle route, plus the timings for the most popular demand responsive public transport 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 public transport vehicle route and the cost to the commuter of the use of each route segment. 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

This data flow contains the identity of a particular set of public transport schedules. This data flow may include a short description of when (day and/or period) the schedule is expected to apply.

transit_schedule_request

This data flow is used within the Manage Transit function to request a copy of the current schedules of public transport services on the public transport routes.

transit_schedule_updates

This data flow is used within the Manage Transit function. It contains the schedule of services on a public transport vehicle route calculated at the request of the public transport fleet manager using previously defined parameters and current public transport 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 public transport 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 public transport 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 public transport services (routes and schedules) in their raw form for distribution to and use by processes in other ITS functions. The map data of public transport routes is included to enable output of displays showing public transport routes by processes that do not have access to a digitized map database. Those that do can use the link identity in the public transport routes data to map out the public transport 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
+ map_transit_data.

transit_service_internal_data

This data flow is used within the Manage Transit function and contains data about the current public transport 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 public transport 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's:

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 public transport operations that are used to generate public transport routes and schedules.

transit_service_raw_data

This data store is used within the Manage Transit function and contains the raw output from the public transport service generation processes, i.e. raw routes and schedules. The term raw indicates that the data is not in a form that would be readily understandable by public transport system operators, users, and fleet managers 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_services
This data flow is sent by the Manage Transit function to other ITS functions. It contains a complete set of all the public transport routes and the services that run upon them, including timings, etc. that are currently being provided by the public transport 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 travellers. 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_services_advisories_request
This data flow is sent from the Provide Driver and Traveller Services function to the Manage Transit function. It is a request for supply of details of the services currently being provided by the public transport fleet and will be used in the preparation of on-line driver and traveller advisory data for output to vehicles.

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 public transport services in response to changes in demand, or a desire to change the modal split currently being used by travellers.

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 public transport services.

transit_services_data_for_output
This data flow is used within the Manage Transit function and contains data about the current public transport services (routes and schedules) in their raw form. It is used to produce output for the public transport fleet manager when requested. 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_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 public transport 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 Public Transport facility to request details of the regular public transport services being currently provided by the public transport 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 commuter fares for all the public transport routes operated by the public transport fleet from which the request was made. This data is for use in processing advanced public transport 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_advisories
This data flow is used within the Provide Driver and Traveller Services function to provide details of public transport services that are relevant to a driver or commuter who is requesting advisory information from a vehicle.

transit_services_for_advisory_data

This data flow is sent from the Manage Transit function to the Provide Driver and Traveller Services function. It contains a complete set of all the public transport routes and the services that run upon them, including timings, etc. that are provided by the public transport fleet from which the data was requested, for use in the preparation of driver and traveller advisory information for output on-board vehicles. It consists of the following data item which is defined in its own DDE:

transit_services.

transit_services_for_broadcast

This data flow is used within the Provide Driver and Traveller Services function to provide details of public transport services to a driver or commuter as part of a wide area broadcast message. This message will only contain data that is unusual such as a new service, new route, closure of an existing service, etc.

transit_services_for_corrections

This data flow is used within the Manage Transit function. It is sent to the Operate Public Transport Vehicles facility for use in the calculation of corrections to public transport vehicle routes and schedules to restore a service to normal operation. It contains a complete set of all the public transport routes and the services that run upon them, including timings, etc. that are provided by the public transport fleet from which the data was requested.

list_size

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 public transport routes and the services that run upon them, including timings, etc. that are provided by the public transport 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.

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 public transport 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 public transport 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 public transport vehicle estimated times of arrival (eta) at public transport stops. It only contains details of the schedule for the public transport 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_services_for_eta_request

This data flow is used within the Manage Transit function to request the details of the current public transport service so that a public transport 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_services_for_guidance

This data flow is sent from the Manage Transit function to the Provide Driver and Traveller Services function. It contains a complete set of all the public transport routes and the services that run upon them, including timings, etc. that are provided by the public transport fleet from which the data was requested, for use in the preparation of data for output as on-line driver and traveller guidance data. The data flow consists of the following data items each of which is defined in its own DDE:

1{transit_services_for_output}2
+ traveller_identity.

transit_services_for_kiosks

This data flow is sent from the Manage Transit function to the Provide Driver and Traveller Services function. It contains details of the public transport services that satisfy a traveller's request and are for output to a kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

kiosk_identity
+ 1{transit_services_for_output}2.

transit_services_for_other_TRM

This data flow is used within the Manage Transit function and contains details of the local public transport services (routes and schedules) for use by other adjacent public transport centres so that coordination of services can be achieved to the benefit of commuters. It consists of the following items of data both of which are defined in their own DDE's:

transit_routes_data
+ transit_schedule_data.

transit_services_for_output

This data flow is used within the Manage Transit function and contains details of the public transport route(s) that fulfill the origin-destination requirements of a particular commuter or traveller'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
+ list_size{transit_route_segment_number
+ transit_route_segment_cost
+ transit_stop_scheduled_time}.

transit_services_for_personal_devices

This data flow contains details of the current public transport services for output to a traveller's personal device and consists of the following data items each of which is defined in its own DDE:

traveller_identity
+ 1{transit_services_for_output}2.

transit_services_for_roadside_fares

This data flow is used within the Manage Transit function. It contains details of the commuter fares for all the public transport routes operated by the public transport fleet from which the request was made. This data is for use in processing public transport fare payments initiated by commuters at the roadside (a public transport 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 Public Transport Vehicles facility for use in the calculation of the scenarios for the return of public transport vehicles to their published schedules and routes. It contains a complete set of all the public transport routes and the services that run upon them, including timings, etc. that are provided by the public transport fleet from which the data was requested.

list_size
+ list_size{transit_services}

transit_services_for_transit_drivers

This data flow is used within the Manage Transit function. It is sent to the Generate Public Transport Driver Schedules facility and contains a complete set of all the public transport routes and the services that run upon them, including timings, etc. that are provided by the public transport fleet from which the data was requested.

list_size
+ list_size{transit_services}.

transit_services_for_travellers

This data flow is used within the Manage Transit function. It is sent to the Provide Traveller Public Transport Interface facility and contains a complete set of all the public transport routes and the services that run upon them, including timings, etc. that are provided by the public transport 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:

traveller_identity

transit_services_for_vehicle_fares

This data flow is used within the Manage Transit function. It contains details of the commuter fares for all the public transport routes operated by the public transport fleet from which the request was made. This data is for use in processing public transport fare payments initiated by commuters on-board a public transport 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 Traveller Services function to the Manage Transit function. It is a request for supply of details of the services being currently provided by the public transport fleet and will be used in the preparation of on-line traveller guidance data. The process(es) that are providing the interface through which the traveller 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 public transport 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

transit_services_kiosk_request

This data flow is sent from the Provide Driver and Traveller Services function to the Manage Transit function. It is a request for details of public transport services for output to a kiosk. The traveller will have to provide the origin and destination so that the receiving process can work out for which public transport route(s) data will have to be provided. The data flow consists of the following data items each of which is defined in its own DDE:

destination
+ kiosk_identity
+ origin.

transit_services_personal_request

This data flow is a request for supply of details of public transport services for output to a traveller's personal device. The traveller will have to provide the origin and destination so that the receiving process can work out for which public transport 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
+ traveller_identity.

transit_services_request

This data flow contains a request for details of the regular public transport services being currently provided by the public transport 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 commuter at a public transport stop. The data is held local to the stop and is used as a source of data if communications with the Public Transport Management centre (PTM), or local public transport vehicle is not available. The data is replaced when new updates are obtained, or in the case of public transport vehicles when the vehicle leaves the public transport stop. This data store consists of the following items of data, each of which is defined in its own DDE:

transit_services_for_travellers
+ transit_vehicle_arrival_time

transit_services_travellers_request

This data flow is used within the Manage Transit function to request the details of the current public transport services for a commuter at the roadside. The commuter will have to provide the origin and destination so that the receiving process can work out for which public transport 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

transit_stop_locations

This data flow is used within the Manage Transit function and provides the location of stops on public transport routes. 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_number
+ location_identity}.

transit_stop_scheduled_time

This data flow is used within the Manage Transit function and contains the time at which a public transport vehicle is scheduled to reach each stop on a public transport route. This will thus be the scheduled time of arrival at the end of a public transport route segment. The identity of the public transport 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_technician_data

This data store is used within the Manage Transit function and contains data about all the public transport technicians available to carry out maintenance work on the vehicles in a public transport fleet. It consists of the following data items each of which is defined in its own DDE:

list_size

transit_technician_detail

This data flow is used within the Manage Transit function and contains data about public transport 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 public transport 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 public transport technicians available to carry out maintenance work on the vehicles in a public transport fleet. It consists of the following data items each of which is defined in its own DDE:

list_size

transit_technician_seniority
This data flow contains the seniority of an individual public transport 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 public transport technician to carry out. It will involve some public transport 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 public transport 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 public transport 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 public transport 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 public transport 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 public transport vehicle driving license.

transit_trip_confirmation_from_kiosk
This data flow contains a confirmation that an individual multimodal trip with connection protection, that was previously requested by the individual traveller will be undertaken as planned.

transit_trip_confirmation_from_user
This data flow contains a confirmation that an individual multimodal trip with connection protection, that was previously requested by the individual traveller will be undertaken as planned.

transit_trip_plan_for_kiosk
This data flow contains the plan for a multimodal trip with connection protection for an individual user, based upon their request for such a trip.

transit_trip_plan_for_users
This data flow contains the plan for a multimodal trip with connection protection for an individual user, based upon their request for such a trip.

transit_trip_request
This data flow contains a request from an Information Service Provider to a Public Transport Management System for an individual public transport or multimodal trip.

transit_updates
This data flow is sent from the Manage Traffic function to the Manage Transit function and contains traffic data for use in public transport operations, requests for information on public transport services, or requests for changes to public transport services to try and re-distribute traveller demand. It consists of the following data items each of which is defined in its own DDE:

parking_lot_transit_request
+ prediction_data
+ transit_conditions_demand_request + transit_ramp_priority_given
+ transit_roadway_priority_given
+ transit_services_demand_request + transit_services_changes_request + traffic_data_for_transit.

transit_user_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 payment instrument, being used by a commuter at the roadside, i.e. a public transport stop. These advanced payments may cover tolls, and/or parking lot charges, and/or public transport 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.

transit_user_advanced_payment_on_vehicle
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 payment instrument being used by a commuter on-board a public transport vehicle. These advanced payments may cover tolls, and/or parking lot charges, and/or public transport 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.

transit_user_advisory_information
This data flow is used within the Provide Driver and Traveller Services function. It contains data to be converted into output displays for the commuter and includes the following data item which is defined in its own DDE:

advisory_data.

transit_user_advisory_information_request
This data flow is used within the Provide Driver and Traveller Services function and contains analyzed requests for the various types of commuter display. It contains the following data items each of which is defined in its own DDE:

advisory_display_type
+ advisory_data_scope.

transit_user_category
This data flow is used within the Manage Transit function and contains the category of commuter to which the associated public transport fare applies, e.g. adult, child, senior citizen, disabled, etc.

transit_user_emergency_request
This data flow is used within the Manage Transit function and contains a request for action because a commuter has identified an emergency situation on-board or close to a public transport vehicle. Details of the public transport vehicle identity and location are provided through accompanying data flows.

transit_user_incident_input
This data flow contains the digitized input from the secure area environment in the public transport operations network. This data will have been converted from its raw input form by sensors within the Manage Transit function.

transit_user_information
This data flow contains an individual service request from a commuter on a public transport vehicle. The information provided will be used to identify a set of public transport (or other transportation options) with the intent of providing connection protection for the commuter during their individual trip.

transit_user_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 commuter's journey. The identity will be that at which the commuter will leave the public transport 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.

transit_user_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 public transport user's journey. The identity will either be that of the public transport stop at which the commuter purchases a ride, or the segment at which the public transport vehicle was located when the commuter 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.

transit_user_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 commuters.

transit_user_roadside_credit_identity
This data flow is sent from the Provide Electronic Payments Services function to the Manage Transit function and contains the credit identity of a commuter at the roadside, i.e. a public transport stop. It is obtained as data input from the payment instrument terminator and consists of the following data item which is defined in its own DDE:

credit_identity.

transit_user_roadside_fare
This data flow is used within the Manage Transit function and contains details of the public transport service that the commuter at the roadside, i.e. at a public transport 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_user_roadside_tag_identity.

transit_user_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 commuter who has violated the public transport fare collection process at the roadside, i.e. at a public transport stop. The data will be used in subsequent public transport fare violation processing.

transit_user_roadside_information
This data flow contains the commuter's destination for the ride that is being requested. The destination will be provided as a character string, from which the identity of the public transport route segment that is at that point can be determined.

transit_user_roadside_payment_response
This data flow is used within the Manage Transit function to provide an indication for output to the commuter at the roadside, i.e. a public transport stop, that the previously submitted fare payment has been accepted (set to 1) or not (set to 999).

transit_user_roadside_processed_fare_data

This data flow is used within the Manage Transit function and contains details of the public transport service that the commuter at the roadside, i.e. a public transport 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
+ transit_user_category.

transit_user_roadside_ride

This data flow is used within the Manage Transit function and contains details of the public transport service that the commuter at the roadside, i.e. at a public transport 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:

transit_user_journey_end
+ transit_user_journey_start
+ transit_route_use_time
+ transit_user_category
+ transit_user_roadside_tag_identity.

transit_user_roadside_ride_data

This data flow is used within the Manage Transit function and contains details of the public transport service that the commuter at the roadside, i.e. a public transport stop, is going to use. It consists of the following data items each of which is defined in its own DDE:

transit_user_journey_end
+ transit_user_journey_start
+ transit_route_use_time
+ transit_user_category
+ transit_user_roadside_tag_identity.

transit_user_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 payment instrument being used by the commuter at the roadside. This may be either a credit identity, or the value of the credit currently stored by the payment instrument, to which public transport 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.

transit_user_roadside_tag_identity

This data is used within the Manage Transit function. It provides the identity of a commuter, at the roadside, i.e. at a public transport stop, for fare payment. The data flow consists of the following data items each of which is defined in its own DDE:
credit_identity
+ traveller_identity.

transit_user_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 public transport vehicle to the infrastructure for 'back-end' processing at a convenient time. The store contains approximately one operating shift's volume of tranaction_records and consists of the following data items each of which is defined in its own DDE:

list_size{transit_user_transaction_record}.

transit_user_transaction_queue

This data flow contains data retrieved from the transaction buffer for batch transmission to the Provide Electronic Payment Services function to request payment processing of one or more public transport fare transactions from on-board a public transport vehicle. This flow provides for both batch (low value/high usage) fare transactions (e.g. city bus routes). The flow consists of the following data items each of which is defined in its own DDE:

list_size{transit_user_transaction_record}.

transit_user_transaction_record
This data flow is used to record a request for payment processing of a public transport fare transaction from on-board a public transport 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
+ transit_user_category
+ traveller_identity.

transit_user_vehicle_credit_identity
This data flow is sent from the Provide Electronic Payments Services function to the Manage Transit function and contains the credit identity of a commuter on-board a public transport vehicle, or a stored credit value. Either data item is obtained by a process within the Provide Electronic Payment Services function as data input from the payment instrument terminator and consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit.

transit_user_vehicle_fare
This data flow is used within the Manage Transit function and contains details of the public transport service that the commuter on a public transport 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
+ transit_user_vehicle_tag_identity.

transit_user_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 commuter who has violated the public transport fare collection process on-board a public transport vehicle. The data will be used in subsequent public transport fare violation processing.

transit_user_vehicle_information
This data flow is used within the Manage Transit function and contains information about other services requested by a commuter on-board a public transport vehicle. These other services will be for what are called 'yellow pages' services, e.g. hotels, restaurants,

transit_user_vehicle_payment_response
This data flow is used within the Manage Transit function to provide an indication for output to the commuter on-board a public transport vehicle that the previously submitted fare payment has been accepted (set to 1) or not (set to 999).

transit_user_vehicle_processed_fare_data
This data flow is used within the Manage Transit function and contains details of the public transport service that the commuter on-board a public transport 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
+ transit_user_vehicle_tag_identity.

transit_user_vehicle_ride
This data flow is used within the Manage Transit function and contains details of the public transport service that the commuter on a public transport 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:

transit_user_journey_end
+ transit_user_journey_start
+ transit_route_use_time
+ transit_user_category
+ transit_user_vehicle_tag_identity.

transit_user_vehicle_ride_data

This data flow is used within the Manage Transit function. It contains details of the public transport service that the commuter on a public transport 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
+ transit_user_category
+ transit_user_journey_end
+ transit_user_journey_start
+ transit_user_vehicle_tag_identity.

transit_user_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 payment instrument being used by the commuter on-board a public transport vehicle. This may be either a credit identity, or the value of the credit currently stored by the payment instrument, to which public transport 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.

transit_user_vehicle_tag_identity

This data is used within the Manage Transit function and provides the identity of a commuter on a public transport vehicle for fare payment. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ traveller_identity.

transit_vehicle_achieved_time

This data flow is used within the Manage Transit function and contains the time at which a public transport vehicle actually reached the end of a public transport route segment. This point is usually a public transport stop and the data is thus the arrival time of a public transport vehicle at each of the public transport stop(s) along the public transport route. The identity of the public transport 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 travellers (as commuters) from on-board public transport 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 traveller (as a commuter) in a public transport 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_advisory_eta

This data flow is used as an interface between the Manage Transit and Provide Driver and Traveller Information functions. It contains the estimated time of arrival of a public transport vehicle at the end of a public transport route segment, which is usually a stop, plus the route and service number on which it is operating. It is used for individual public transport 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_conditions
This data flow is used within the Manage Transit function and contains the deviations from the published data of a public transport service. This data is for output to the multimodal transportation service providers so that adjustments can be made to their services to enable commuters to make their connections at modal interchange points.

transit_vehicle_arrival_deviations
This data flow is used within the Manage Transit function and contains the deviation from the published service of a public transport vehicle. This data is for output to the multimodal transportation service providers so that their services may be adjusted to enable commuters on the vehicle to make their connections at modal interchange points.

transit_vehicle_arrival_time
This data flow is used within the Manage Transit function. It contains the estimated time of arrival of a public transport 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 public transport vehicle will reach defined the end of public transport_route segments on its route and is used to determine any schedule deviations. The end of a public transport route segment is usually a public transport stop and the data is thus the expected arrival time of a public transport vehicle at each of the public transport stop(s) along the public transport 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_availability
This data flow is used within the Manage Transit function and contains details of a public transport 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 public transport 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 public transport vehicle. The data is produced by sensors analyzing conditions on-board the vehicle during the course of its operation.

transit_vehicle_collected_trip_data
This data flow is used by processes within the Manage Transit function and contains data collected from the public transport 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_passenger_loading
+ transit_vehicle_running_times.

transit_vehicle_corrective_instructions
This data flow is used within the Manage Transit function and contains instructions for a public transport vehicle driver that will enable the service being currently operated by the vehicle to be brought back to its planned and published schedule. The instructions will be output to the driver by an interface process.

transit_vehicle_data
This data flow is used by processes within the Manage Transit function and contains data about public transport vehicles in the fleet operated by the function. This data is used in the planning of routes and schedules for regular public transport services. It will have been obtained from processing the input to sensors on-board each public transport 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 public transport 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_deviation_data
This data flow is used within the Manage Transit function and contains data showing to what extent a public transport vehicle has departed from its published service, i.e. by how much it is running early of late, or any departure from the published route. This data is for output to the public transport vehicle driver.

transit_vehicle_deviation_request
This data flow is sent by the Provide Driver and Traveller Services function to the Manage Transit function. It contains a request for the provision of data on the current public transport service deviations for output to a traveller at a kiosk.

transit_vehicle_deviation_update
This data flow is used within the Manage Transit function. It contains the estimated time of arrival of several public transport vehicles at stop(s) along their route(s) plus the route and service number on which they are operating. It is used for multiple public transport 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_vehicle_deviations
This data flow is used within the Manage Transit function and contains the deviations of a public transport vehicle from its published schedule. It is used in calculating the return to the published schedule where the deviation is minor and applies to a single vehicle.

transit_vehicle_deviations_details
This data flow is used within the Manage Transit function. It contains details of the deviations of public transport vehicles from their published routes and schedules 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_collected_trip_data
+ transit_vehicle_deviation_update
+ transit_vehicle_location
+ transit_vehicle_schedule_deviations.

transit_vehicle_deviations_details_request
This data flow is used within the Manage Transit function. It contains a request for output of the details of the deviations of public transport vehicles from their published routes and schedules for use as a source of data to be sent to processes in other functions.

transit_vehicle_deviations_from_schedule
This data flow is used within the Manage Transit function and contains the deviations of a public transport 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_eta
This data flow is used within the Manage Transit function. It contains the estimated time of arrival of a public transport vehicle at the end of a public transport route segment, which is usually a stop, plus the route and service number on which it is operating. It is used for individual public transport 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_eta_for_advisory

This data flow is used as an interface between the Manage Transit and Provide Driver and Traveller Information functions. It contains the estimated time of arrival of a public transport vehicle at the end of a public transport route segment, which is usually a stop, plus the route and service number on which it is operating. It is used for individual public transport 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 public transport fare transactions that have been processed on the vehicle as a result of commuters coming on-board and requesting rides that they have not paid for at the roadside, i.e. a public transport 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

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 being currently charged for regular public transport services. It is for use in calculating fares that are to be paid by commuters on-board a public transport 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 public transport fare has been deducted from the credit currently stored by the commuter's payment instrument has been completed successfully. The data flow is used when the commuter is paying for the public transport fare on-board a public transport 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 public transport fare will be deducted by the financial institution from the credit identity previously provided by the payment instrument being used by the commuter at the roadside. It is only sent when a credit identity has been previously received from the 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 public transport fare to be deducted from the credit currently stored by the commuter's payment instrument, when it is being used on-board a public transport vehicle. It is only sent when a value of stored credit has been previously received from the 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 is used within the Manage Transit function and contains the identity of an individual public transport vehicle. This data is used by processes within the function 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 public transport vehicle. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_collected_trip_data
+ transit_vehicle_collected_maintenance_data
+ transit_vehicle_eta
+ transit_vehicle_deviation_update
+ transit_vehicle_identity
+ transit_vehicle_location
+ transit_vehicle_schedule_deviations.

transit_vehicle_junction_preemption

This data flow contains data necessary for a public transport vehicle to be given preemption (priority) at an indicator that is a particular set of junction control signals. The data flow is sent directly from the public transport vehicle to the junction controller, which is assumed to be capable of giving priority to the correct phase(s) for any received preemption request.

transit_vehicle_location

This data flow is used within the Manage Transit function to provide the exact location of the public transport vehicle. It contains the public transport vehicle location plus the 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 public transport vehicle. It is based on the standard vehicle location data supplemented with additional data that is only relevant to public transport vehicles. The data flow consists of the following data item which is defined in its own DDE:

location_identity.

transit_vehicle_location_for_deviation

This data flow is used within the Manage Transit function to provide the exact location of the public transport vehicle for the calculation of any return to schedule scenarios. It contains the public transport vehicle location plus its identity and consists of the following items, each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_vehicle_location_data.

transit_vehicle_location_for_eta

This data flow is used within the Manage Transit function to provide the exact location of the public transport vehicle for calculation of its estimated time of arrival (eta). It contains the public transport vehicle location plus the 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_for_store

This data flow is used within the Manage Transit function to provide the exact location of the public transport vehicle for storage so that it can be used by other facilities and functions within ITS. It contains the public transport vehicle location plus the 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_maintenance

This data flow contains data on the need for maintenance of an individual public transport 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 kilometress, or has achieved a certain age. It consists of the following data items each of which is defined in its own DDE:

120{transit_vehicle_maintenance_date
+ transit_vehicle_maintenance_mileage

transit_vehicle_maintenance_data
This data flow is used within the Manage Transit function and contains maintenance data for a public transport vehicle. This is for output to the public transport fleet manager and is sent in response to a request for data received from the manager. 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 public transport vehicle maintenance data to the public transport fleet manager from the store of this data. The data flow consists of the following data item which is defined in its own DDE:

transit_vehicle_maintenance_data_update
This data flow is used within the Manage Transit function. It contains updates for the public transport vehicle maintenance data, provided by the public transport maintenance personnel.

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 public transport 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:

transit_vehicle_maintenance_details
This data flow is used within the Manage Transit function and contains information about the maintenance required by an individual public transport 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 public transport vehicles for use by processes within the schedule public transport 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 public transport vehicle based on its current condition.

transit_vehicle_maintenance_log
This data flow contains a log of the maintenance carried out on an individual public transport 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:

3650{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 public transport 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 public transport vehicle maintenance log that is held in the store of public transport 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 public transport 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 public transport 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 public transport 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 public transport 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

transit_vehicle_maintenance_required
This data flow contains a brief description of the unscheduled maintenance activity that must take place on a particular public transport 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 public transport 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:

320{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 public transport 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 public transport

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 public transport 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 kilometress it will be serviced on particular dates. Vehicles exceeding the expected mileage will be serviced on a kilometress 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 public transport vehicle. This will be the number of kilometress 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 public transport 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 public transport vehicle maintenance specifications. 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 public transport 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 public transport vehicle. These will include but not be limited to change engine oil, change engine cooling water, add anti-freeze to engine cooling water, check driver'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,

transit_vehicle_mileage_accumulated

This data flow contains the total mileage accumulated by a public transport vehicle.

transit_vehicle_on_board_data

This data flow is used within the Manage Transit function and contains data that is used to supplement other data giving the public transport vehicle's location to locate the vehicle to a very high degree of accuracy. 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 public transport vehicle's drive-line, e.g. 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 public transport 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
+ list_size{transit_vehicle_eta
+ transit_vehicle_collected_maintenance_data
+ transit_vehicle_collected_trip_data
+ transit_vehicle_deviation_update
+ transit_vehicle_location
+ transit_vehicle_schedule_deviations}.

transit_vehicle_operational_data
This data flow is used within the Manage Transit function and contains operational data collected from public transport 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 public transport vehicles for use by processes within the schedule public transport 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_details
This data flow is used within the Manage Transit function. It contains information about the maintenance of a public transport 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_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 public transport vehicle.

transit_vehicle_passenger_data
This data flow is used within the Manage Transit function and contains the number of passengers carried by a public transport vehicle while in service. It is derived from on-board vehicle fare collection data and may be used for calculating future public transport schedules. It consists of the following data items each of which is defined in its own DDE:

transit_passenger_numbers
+ transit_route_number
+ transit_route_segment_number
+ transit_route_use_time
+ transit_user_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 (commuters)
carried by a public transport vehicle on each part of its route, i.e. each public transport 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 public transport vehicle while in service. It is derived from the numbers of passengers on the vehicle for each public transport 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 (commuters) that were on-board a public transport vehicle on a particular public transport route segment. This data is measured by counting the numbers of commuters that enter and leave the vehicle at each public transport stop, and is determined independently of any public transport fare collection process.

transit_vehicle_pedestrian_preemption
This data flow contains data necessary for a public transport vehicle to be given preemption (priority) at an indicator that is a particular set of pedestrian signals. The data flow is sent directly from the public transport vehicle to the pedestrian controller, which is assumed to be capable of giving priority to the correct phase.

transit_vehicle_preemption_request
This data flow is used within the Manage Transit function. It contains a request for the output of the preemption signal from a public transport vehicle to traffic management equipment at the roadside.

transit_vehicle_ramp_preemption
This data flow is sent from the Manage Transit function to the Manage Traffic function and contains the data necessary for a public transport vehicle to be given preemption (priority) at an indicator that is a particular set of highway entry ramp control signals. The data flow is sent directly from the public transport 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_roadway_preemptions
This data flow is sent from the Manage Transit function to the Manage Traffic function and contains data necessary for an individual public transport vehicle to be given preemption (priority) at indicator controllers. This will be at the controller for a particular road junction, pedestrian crossing, or highway entrance ramp. The data is sent directly from the public transport 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_junction_preemption
+ transit_vehicle_pedestrian_preemption
+ transit_vehicle_ramp_preemption

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 public transport vehicle will reach the end of each public transport route segment on its route and is used to determine any schedule deviations. The end of a public transport route segment is usually a public transport stop and the data is thus the expected arrival time of a public transport vehicle at each of the public transport stop(s) along the public transport 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 public transport vehicle from its published

transit_vehicle_schedule_deviations
This data flow is sent from the Manage Transit function to processes in the Provide Driver and Traveller Services function. It contains the deviations of public transport vehicles from their published routes and schedules at public transport route segments that have already been completed, i.e. at public transport stops that have been passed by the vehicle. The data is used to provide information about the current state of the public transport service operation to a traveller, 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_vehicle_sign_preemption
This data flow is sent from the Manage Transit function to the Manage Traffic function and contains data necessary for a public transport vehicle to have a message output giving it preemption (priority) at an indicator that is a particular dynamic message sign (dms) or fixed message sign that has a public transport priority message that can be displayed. The data flow is sent directly from the public transport vehicle to the sign controller and may consist of either a single alphanumeric character that will enable the sign controller to output the correct message from its list of known messages, or a string of up to twenty (20) alphanumeric characters for a controller driving

transit_vehicle_status
This data flow is used to pass information about the public transport vehicle to the maintenance facility and contains data 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_time
This data flow is used within the Manage Transit function. It contains the estimated time of arrival of a public transport vehicle at the end of the next public transport route segment not so far reached during its journey along the public transport route. The end of a public transport route segment is usually a public transport stop and the data is thus the estimated arrival time of a public transport vehicle at each of the remaining public transport stop(s) along the public transport route. The identity of the public transport route segment to which this data applies is carried in an accompanying data flow. The time is stored as a seven (7) character string in the format 'hhmmssd'. The first six characters show the time using the 24-hour clock system, whilst the last character is an indicator to show whether the time applies to the day on which the schedule

transit_vehicle_type
This data flow identifies public transport vehicles by their type and is used by processes within the Manage Transit function.

transit_vehicle_user_data
This data flow is used within the Manage Transit function and contains data about a public transport vehicle for automatic output to commuters at public transport stops. The data is output at the public transport 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_video_camera_command
This data flow is used within the Manage Transit function and contains control parameters for closed circuit television (cctv) systems located in the secure area environment. These parameters may cover things such as camera pan, tilt, and zoom, plus other picture controls.

transit_video_camera_image
This data flow is used within the Manage Transit function and contains video image data. This will have been received by closed circuit television (cctv) systems located in the secure area environment and may contain images of incidents.

traveller_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 public transport fares, for a trip plan which has been accepted by the traveller. It consists of the following data items each of which is defined in its own DDE:

traveller_identity
+ advanced_tolls_confirm
+ advanced_fares_confirm
+ advanced_traveller_charges_confirm.

traveller_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 public transport fares for a trip which a traveller has confirmed. It consists of the following data items each of which is defined in its own DDE:

traveller_identity
+ credit_identity
+ toll_route_segments
+ ride_segments
+ parking_space_details.

traveller_archive_catalog
This data flow is used in to provide the description of the data contained in the collection of traveller 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

traveller_archive_catalog_request
This data flow from the Manage Archived Data function to the Provide Driver and Traveller Services function contains the request for a catalog of the data held by the Provide Driver and Traveller 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

traveller_archive_data
This data flow is from the Provide Driver and Traveller 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 traveller via a personal device or kiosk, route guidance data, vehicle guidance probe data, parking lot data, trip requests and traveller rideshare requests and data, other-routes data, road network use data, and traveller payment transaction data and meta-data. It contains the following data items each of which is defined in its own DDE:

traveller_archive_catalog

traveller_archive_data_request
This data flow from the Manage Archived Data function to the Provide Driver and Traveller Services function contains the request for the data held by the Provide Driver and Traveller 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.

traveller_archive_input
This data flow from the Manage Archived Data function to the Provide Driver and Traveller 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:

traveller_archive_request
+ traveller_archive_status.

traveller_archive_request
This data flow from the Manage Archived Data function to the Provide Driver and Traveller Services function contains the request for data collected and stored by the Provide Driver and Traveller 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:

traveller_archive_catalog_request
+ traveller_archive_data_request.

traveller_archive_status
This data flow is sent from the Manage Archived Data function to the Provide Driver and Traveller Services function. It is the status returned when traveller information archive data is sent from the Provide Driver and Traveller Services function to the Manage Archived Data function.

traveller_confirm_for_archive
This data flow is used within the Provide Driver and Traveller Services function. It is used to provide data to the data archive about the confirmation of trip details provided as the result of a traveller's previous trip request input from a personal device or kiosk. It consists of the following data items each of which is defined in its own DDE:

traveller_personal_trip_confirmation_for_archive
+ traveller_trip_confirmation_for_archive.

traveller_contact_information
This data flow contains contact information for the traveller. This information would include address, phone number(s) (possibly referenced to time of day), fax number, pager number, and email address.

traveller_contact_setting
This data flow contains traveller'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:

traveller_name
+ traveller_contact_information.

traveller_current_condition_request
This data flow is used within the Provide Driver and Traveller Services function and contains a request for details of the current conditions, e.g. weather, events, incidents, etc. The request includes the identity of the kiosk from which the request was input by the traveller so that the response can be correctly returned. The data flow consists of the following item which is defined in its own DDE:

traveller_current_condition_request_for_archive
This data flow is used within the Provider Driver and Traveller Services function. It is used to provide data to the data archive about requests made for details of the current conditions, e.g., weather, events, incidents, etc. via a kiosk. It consists of the following data item which is defined in its own DDE:

traveller_current_condition_request.

traveller_data_for_archive
This data flow is used within the Provide Driver and Traveller Services function. It contains details of all of the service requests and confirmations input by the traveller via a personal device or kiosk, route guidance data, vehicle guidance probe data, parking lot data, trip requests and traveller rideshare requests and data, other-routes data, road network use data, and traveller payment transaction data. It contains the following data items each of which is defined in its own DDE:

service_req_and_confirm_for_archive
+ service_req_and_confirm_for_archive_attributes
+ guidance_data_for_archive
+ guidance_data_for_archive_attributes
+ traveller_info_payments_transactions
+ traveller_info_payments_transactions_attributes
+ parking_lot_data_for_archive
+ parking_lot_data_for_archive_attributes
+ trip_request_for_archive
+ trip_request_for_archive_attributes
+ rideshare_for_archive
+ rideshare_for_archive_attributes
+ usage_for_archive
+ usage_for_archive_attributes.

traveller_device_identity
This data flow provides an identity of a device being used by a traveller to access ITS data. The identity is used to create device settings for subscription type transmission of personalized data.

traveller_device_setting
This data flow contains information about the device used by the traveller 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:

traveller_device_identity

traveller_guidance_accepted
This data flow is used within the Provide Driver and Traveller Services function and contains the acceptance by the traveller 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.

traveller_guidance_data

This data flow is used within the Provide Driver and Traveller Services function and contains data input by the traveller 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.

traveller_guidance_instructions

This data flow is used within the Provide Driver and Traveller Services function. It contains details of the next route segment to be followed by the traveller in the form of which side of the road to walk, which cycle track to use, which transit service to take,

traveller_guidance_request

This data flow is used within the Provide Driver and Traveller Services function and is used to request on-line dynamic or autonomous guidance for the traveller using a personal device. The choice of the type of guidance made by the traveller is shown by the character used in the data flow and will be 'D' for infrastructure based dynamic, and 'A' for totally autonomous, i.e. no contact with anything outside the personal device, except for broadcast data used to determine location.

traveller_guidance_route

This data flow is used within the Provide Driver and Traveller Services function and contains the data for a traveller's route which has been produced following a route request from the traveller. This data flow includes the information required to provide an initial route or a route change to a traveller who is enroute. It consists of the following data items each of which is defined in its own DDE:

route_identity
+ traveller_route

traveller_handicap_access_request

This data flow is used within the Provide Traveller Services function to request assisted handicap access such as the available handicap parking facilities.

traveller_identity

This data flow contains the identity of the traveller who is making a request for information or guidance, so that the results of the request can be sent back to the originating traveller. It may be passed to processes in functions outside the Provide Driver and Traveller Services function for the same purpose. The identity can be up to twenty four(24) alphanumeric characters so that (for example) the traveller's family name and initials can be used.

traveller_identity_store

This store is used within the Provide Driver and Traveller Services function and holds the identity of the traveller's Personal Device (PPD). This will be pre-loaded into the PPD during its manufacture and can be associated with its owner.

traveller_info_data_archive

This store is used within the Provide Driver and Traveller Services function. It contains a catalog and details of all of the service requests and confirmations input by the traveller via a personal device or kiosk, route guidance data, vehicle guidance probe data, parking lot data, trip requests and traveller rideshare requests and data, other-routes data, road network use data, and traveller payment transaction data and meta-data It contains the following data items each of which is defined in its own DDE:

traveller_archive_catalog
+ traveller_data_for_archive.

traveller_info_payments_transactions

This data flow is sent by the Provide Electronic Payment Services function to the Provide Driver and Traveller Services function. It is used to provide data about records of all payment transactions for the provision of other (yellow pages) services, driver and traveller map update services, traveller trip services, and rideshare services, and registration of suppliers of these services. The data flow consists of the following data items each of which is defined in its own DDE:

yellow_pages_provider_payments_transactions
+ driver_map_update_payments_transactions
+ traveller_map_update_payments_transactions
+ traveller_trip_payments_transactions
+ traveller_rideshare_payments_transactions.

traveller_info_payments_transactions_attributes

This data flow is used within the Provide Driver and Traveller Services function to provide data attribute information to the data archive about records of all payment transactions for the provision of other (yellow pages) services, driver and traveller map update services, traveller trip services, and rideshare services, and registration of suppliers of these services. 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.

traveller_information

This data flow is used within the Provide Driver and Traveller Services function to provide requested travel services and yellow pages data to travellers in vehicles, including commuters. It consists of the following data items each of which is defined in its own DDE:

traffic_data_for_advisories

traveller_information_request

This data flow is used within the Provide Driver and Traveller Services function to request that traveller services and yellow pages data be output to a traveller in a public transport vehicle. The scope and public transport route number data will be provided by the commuter, while the vehicle location will be provided automatically. The scope defines the data to be passed across this flow, and includes services information. The data flow consists of the following data items each of which is defined in its own DDE:

advisory_data_scope
+ vehicle_location_for_advisories
+ transit_route_number
+ transit_vehicle_identity.

traveller_input_request

This data flow is used within the Provide Driver and Traveller 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.

traveller_location
This data flow is used within the Provide Driver and Traveller Services function and contains the traveller's location as computed from sensor data.

location_identity.

traveller_location_for_autonomous_guidance
This data flow is used within the Provide Driver and Traveller Services function and contains the traveller's location as computed from sensor data. This is a high precision data flow that enables the location of the traveller to be pin-pointed to a high degree of accuracy and is used for traveller autonomous guidance purposes.

location_identity.

traveller_location_for_dynamic_guidance
This data flow is used within the Provide Driver and Traveller Services function and contains the traveller's location as computed from sensor data. This is a high precision data flow that enables the location of the traveller to be pin-pointed to a high degree of accuracy and is used for traveller dynamic guidance purposes.

location_identity.

traveller_location_for_emergencies
This data flow is used within the Provide Driver and Traveller Services function and contains the traveller's location as computed from sensor data. This is a high precision data flow that enables the location of the traveller 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.

location_identity.

traveller_location_for_information
This data flow is used within the Provide Driver and Traveller Services function and contains the traveller's location as computed from sensor data. This is a high precision data flow that enables the location of the traveller to be pin-pointed to a high degree of accuracy and is used to filter personal information data output.

location_identity.

traveller_location_for_planning
This data flow is used within the Provide Driver and Traveller Services function and contains the traveller's location as computed from sensor data. This is a high precision data flow that enables the location of the traveller to be pin-pointed to determine the origin for trip planning requests and to act as a filter for traffic and travel information.

location_identity.

traveller_map_database
This data flow is used by the Provide Driver and Traveller Services function. It contains details of the physical geometry of each segment of roads, public transport routes, pathways, cycleways, etc. which may be used by a traveller. This data includes the location of such things as signs, bends, junctions, traffic lanes, public transport 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 time of the day/days of the week, to take account of peak travel times, weekend travel etc.

traveller_map_update_payment_request
This data flow is sent from the Provide Driver and Traveller 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 traveller 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:

traveller_identity
+ credit_identity
+ navigable_map_traveller_update_cost.

traveller_map_update_payment_response

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveller Services function and contains the response to a previous request from the traveller that payment be made for an update of the navigable map database used for on-line traveller guidance. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ traveller_identity.

traveller_map_update_payments_transactions

This data flow is used within the Provide Payment Electronic Services function and contains records of all payment transactions for driver map updates.

traveller_map_update_request

This data flow is used within the Provide Driver and Traveller Services function and contains a request for an update of the navigable map database used for on-line traveller personal guidance. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ traveller_identity.

traveller_map_update_response

This data flow contains the response to a previous request from the traveller for an update of the navigable map database used for on-line traveller 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_traveller_update_cost
+ stored_credit

traveller_name

This data flow contains the traveller's name, which could be implemented as a single element, or as separate last and first name

traveller_other_services_payment_request

This data flow is used to send traveller 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 Traveller Services function to the Provide Electronic Payment Services function. It contains the following data items each of which is defined in its own DDE:

traveller_identity
+ credit_identity
+ yellow_pages_dining_reservation
+ yellow_pages_lodging_reservation
+ yellow_pages_ticket_purchase.

traveller_other_services_payment_result

This data flow is sent by the Provide Electronic Payment Services function to the Provide Driver and Traveller 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:

traveller_identity
+ other_services_payment_confirm.

traveller_payment_confirmation

This data flow is used within the Provide Driver and Traveller 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 traveller's payment instrument The request for payment will have been initiated by input from the traveller 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_traveller_charges_confirm
+ credit_identity
+ kiosk_identity
+ stored_credit
+ traveller_total_trip_cost.

traveller_payment_information

This data flow is used within the Provide Driver and Traveller Services function. It contains details of the components of a trip which a traveller has obtained from the input of data to a kiosk and for which advanced payment is needed following trip confirmation. The traveller's identity and credit identity or stored credit from the 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.

traveller_payment_request

This data flow is used to send traveller payment information for a confirmed trip from the Provide Driver and Traveller Services function to the Provide Electronic Payment Services function. The payment will have been initiated by input from the traveller 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
+ traveller_identity.

traveller_payment_response

This data flow is sent by the Provide Electronic Payment Services function to the Provide Driver and Traveller Services function to indicate the payment for a confirmed trip has been successfully completed. The payment will have been initiated by input from the traveller 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

traveller_personal_credit_identity

This data flow is sent from the Provide Electronic Payments Services function to the Provide Driver and Traveller Services function and contains the credit identity of a traveller using a personal device, e.g. PDA. It is obtained as data input from the payment instrument terminator and consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit.

traveller_personal_current_condition_request

This data flow is used within the Provide Driver and Traveller Services function and contains a request for details of the current conditions, e.g. weather, events, incidents, etc. The request includes the identity of the personal device from which the request was input by the traveller so that the response can be correctly returned. The data flow consists of the following item which is defined in its own DDE:

traveller_identity.

traveller_personal_current_condition_request_for_archive

This data flow is used within the Provider Driver and Traveller Services function. It is used to provide data to the data archive about requests made for details of the current conditions, e.g., weather, events, incidents, etc. via a personal device. It consists of the following data item which is defined in its own DDE:

traveller_personal_current_condition_request.

traveller_personal_display_map_update_request

This data flow is used within the Provide Driver and Traveller 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 traveller's personal device. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ traveller_identity.

traveller_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 traveller's personal device. Payment cna 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_traveller_update_cost
+ stored_credit
+ traveller_identity.

traveller_personal_display_update_cost

This data flow is sent from the Provide Driver and Traveller 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 traveller's personal device. This cost is to be deducted from the credit currently stored on the traveller's payment instrument. The data flow includes the following data items each of which is defined in its own DDE:

display_map_traveller_update_cost
+ stored_credit
+ traveller_identity.

traveller_personal_display_update_payment_request

This data flow is sent from the Provide Driver and Traveller 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 traveller'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:

traveller_identity
+ credit_identity

traveller_personal_display_update_payment_response

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveller Services function and contains the response to a previous request from the traveller 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 traveller's personal device. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ traveller_identity.

traveller_personal_emergency_request

This data flow is used within the Provide Driver and Traveller Services function to carry data about an emergency situation that applies to a traveller. It contains the following data items each of which is defined in its own DDE:

traveller_identity

+ traveller_location_for_emergencies.

traveller_personal_map_update_cost

This data flow is sent from the Provide Driver and Traveller Services function to the Provide Electronic Payment Services function and contains the cost of an update to the navigable map database used within the traveller's personal device. This cost is to be deducted from the credit currently stored by the traveller's 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
+ traveller_identity
+ navigable_map_traveller_update_cost.

traveller_personal_payment_confirmation

This data flow is used within the Provide Driver and Traveller 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 traveller's payment instrument. The request for payment will have been initiated by input from the traveller 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_traveller_charges_confirm
+ credit_identity
+ stored_credit
+ traveller_identity
+ traveller_total_trip_cost.

traveller_personal_payment_information

This data flow is used within the Provide Driver and Traveller Services function. It contains details of the components of a trip which a traveller has obtained from the input of data to a personal device and for which advanced payment is needed following a trip confirmation. The traveller's identity and credit identity or stored credit from the 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
+ traveller_identity.

traveller_personal_regular_data

This data store is used within the Provide Driver and Traveller Services function to hold items of data which are regularly used as part of traveller inputs to a personal device. Example of this type of data are the home location of the traveller which may act as the origin for trip requests, traveller identity which is used to identify data requests within the function and the traveller's credit identity which enables payment for advanced charges and other services.

traveller_personal_requests_and_confirmation

This data flow is used within the Provide Driver and Traveller Services function and contains requests for traffic, trip planning and travel information or confirmation that the previously requested information is acceptable to the traveller. The data will have been input by the traveller to a personal device. The data flow consists of the following data items each of which is defined in its own DDE:

traveller_personal_current_condition_request
+ traveller_personal_payment_information
+ traveller_personal_trip_confirmation

traveller_personal_traffic_condition_request

This data flow is used within the Provide Driver and Traveller Services function and contains details of the type of traffic information requested by a traveller from a personal device. It consists of the following items each of which is defined in its own DDE:

traveller_identity

traveller_personal_transaction_confirmation

This data flow is used within the Provide Driver and Traveller Services function to confirm any reservations made by the traveller from a personal device. These reservations will be based on information obtained by the traveller 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
+ traveller_identity
+ transaction_number
+ yellow_pages_cost
+ yellow_pages_lodging_reservation_confirmation
+ yellow_pages_dining_reservation_confirmation
+ yellow_pages_ticket_purchase_confirmation.

traveller_personal_transaction_request

This data flow is used within the Provide Driver and Traveller Services function and contains data input by the traveller at a personal device to make reservations for various other (yellow pages) services. It contains the following data items, each of which is defined in its own DDE:

yellow_pages_dining_reservation
+ yellow_pages_lodging_reservation
+ yellow_pages_ticket_purchase.

traveller_personal_transaction_request_for_archive

This data flow is used within the Provide Driver and Traveller Services function to provide data to the data archive about requests for reservations for various other(yellow pages) services via a personal device. The data flow consists of the following data item which is defined in its own DDE:

traveller_personal_transaction_request.

traveller_personal_public transport_condition_request

This data flow is used within the Provide Driver and Traveller Services function and contains details of the type of public transport information requested by the traveller from a personal device. It consists of the following items each of which is defined in its own DDE:

traveller_identity

traveller_personal_trip_confirmation

This data flow is used within the Provide Driver and Traveller Services function to confirm the trip details provided as the result of a traveller's previous trip request input from a personal device. It contains the following data item which is defined in its own DDE:

paratransit_service_confirmation
+ traveller_identity

traveller_personal_trip_confirmation_for_archive

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide data to the data archive about the confirmation of trip details provided as the result of a traveller's previous trip request input from a personal device. It consists of the following data item which is defined in its
own DDE:

traveller_personal_trip_confirmation.

traveller_personal_trip_confirmation_information

This data flow is used within the Provide Driver and Traveller Services function and contains data confirming various aspects of a traveller's trip. It is sent as a result of a traveller previously requesting confirmation of a trip, the details of which were provided in response to data inputs from the traveller to a personal device. The data flow consists of the following data items each of
which is defined in its own DDE:

traveller_personal_payment_confirmation
+ traveller_personal_transaction_confirmation
+ traveller_personal_trip_information.

traveller_personal_trip_costs

This data flow is sent from the Provide Driver and Traveller Services function to the Provide Electronic Payment Services function. It contains the cost of a traveller's trip based on a previous trip request and confirmation input by the traveller from a personal device such as a PDA. This cost is to be deducted from the credit currently stored on the traveller's payment instrument. The data flow includes the following data items each of which is defined in its own DDE:

stored_credit
+ traveller_identity
+ traveller_total_trip_cost.

traveller_personal_trip_information

This data flow is used within the Provide Driver and Traveller Services function and contains information about a proposed trip that the traveller 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 | route | rideshare_response]
+ traveller_identity

traveller_personal_trip_planning_requests

This data flow is used within the Provide Driver and Traveller Services function and contains data that the traveller has provided through a personal device 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:

transit_deviations_personal_request
+ traveller_identity
+ traveller_personal_trip_request
+ traveller_personal_trip_confirmation
+ traveller_personal_payment_information
+ traveller_personal_transit_condition_request
+ traveller_personal_transaction_request
+ traveller_personal_traffic_condition_request
+ traveller_profile
+ traveller_yellow_pages_information_request
+ traveller_handicap_access_request.

traveller_personal_trip_planning_responses

This data flow is used within the Provide Driver and Traveller Services function and contains the responses to various requests for information and trip planning services previously input by a traveller from a personal device. The data will only cover those services needed to fulfill the traveller's trip or information request. If the previous input from the traveller was a trip confirmation, the data will include either the credit identity or stored credit value originally supplied by the traveller's payment instrument. The data flow consists of the following data items each of which is defined in its own DDE:

traffic_data_for_personal_devices
+ transit_services_for_personal_devices
+ transit_deviations_for_personal_devices
+ traveller_identity
+ traveller_personal_trip_information
+ traveller_personal_payment_confirmation
+ traveller_personal_yellow_pages_data
+ traveller_transaction_confirmation.

traveller_personal_trip_request

This data flow is used within the Provide Driver and Traveller Services function and contains data about a traveller'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
+ traveller_identity
+ traveller_rideshare_request.

traveller_personal_trip_request_for_archive

This data flow is used within the Provider Driver and Traveller Services function. It is used to provide data to the data archive about requests made for trips via a personal device. It consists of the following data item which is defined in its own DDE:

traveller_personal_trip_request.

traveller_personal_yellow_pages_data

This data flow contains details of other (yellow pages) services which is to be sent to the traveller interface facility for output using a kiosk. The size of the data flow has been set to take account of the need to provide only a small percentage of the total yellow pages data that is available. The data flow consists of the following data items each of which is defined in its own DDE:

traveller_identity
+ yellow_pages_general_information
+ yellow_pages_specific_information
+ yellow_pages_transaction_information.

traveller_personal_yellow_pages_information_request

This data flow is used within the Provide Driver and Traveller Services function and contains a request for data on other (yellow pages) services to be provided to a traveller using a personal device. The traveller identity is used as the means of ensuring that the data produced in response to the request is returned to the correct traveller. As no filtering components are included, all the data currently available will be provided. The data flow consists of the following data item which is defined in its own DDE:

traveller_identity.

traveller_personal_yellow_pages_information_request_for_archive

This data flow is used within the Provide Driver and Traveller Services function to provide data to the data archive about requests for data on other(yellow pages) services to be provided to a traveller via a personal device. The data flow consists of the following data item which is defined in its own DDE:

traveller_personal_yellow_pages_information_request.

traveller_personal_yellow_pages_requests

This data flow is used within the Provide Driver and Traveller Services function to transfer requests for other services (yellow pages) information from the traveller interface facility in a personal device to the yellow pages data collection facility. It consists of the following data items each of which is defined in its own DDE:

traveller_personal_payment_information
+ traveller_personal_transaction_request
+ traveller_personal_yellow_pages_information_request.

traveller_profile

This data flow contains a traveller's personal profile which is submitted one time and then used to generate future personalized trip information. This profile supports a subscription type of information dissemination to the traveller. It consists of the following data items each of which is defined in its own DDE:

traveller_traffic_profile
+traveller_transit_profile.

traveller_profile_from_vehicle

This data flow contains a traveller's personal profile which is submitted one time and then used to generate future personalized trip information. This profile supports a subscription type of information dissemination to the traveller. It consists of the following data items each of which is defined in its own DDE:

traveller_traffic_profile
+traveller_transit_profile.

traveller_regular_data

This data store is used within the Provide Driver and Traveller Services function to hold items of data which are regularly used as part of traveller 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.

traveller_requests_and_confirmation

This data flow is used within the Provide Driver and Traveller Services function and contains requests for traffic, trip planning and travel information or confirmation that the previously requested information is acceptable to the traveller. The data will have been input by the traveller to a kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

traveller_current_condition_request
+ traveller_payment_information

+ traveller_trip_confirmation

traveller_rideshare_confirmation

This data flow is used within the Provide Driver and Traveller Services function and contains a traveller'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
+ traveller_identity.

traveller_rideshare_constraints

This data flow is used within the Provide Driver and Traveller Services function to provide details of the constraints for a rideshare being requested as part of a
traveller'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_ahs_lanes + constraint_on_interstate + constraint_on_urban
+ constraint_on_vehicle_type.

traveller_rideshare_data

This data flow is used within the Provide Driver and Traveller Services function to provide details about a rideshare requested as part of a traveller'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.

traveller_rideshare_payments_transactions

This data flow is used within the Provide Payment Electronic Services function and contains records of all payment transactions for traveller ridesharing provision.

traveller_rideshare_preferences

This data flow is used within the Provide Driver and Traveller Services function to provide details of the preferences for a
rideshare being requested as part of a traveller'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

traveller_rideshare_request

This data flow is used within the Provide Driver and Traveller Services function to request a rideshare as part of a traveller's proposed trip request. It consists of the following data items each of which is defined in its own DDE:

traveller_identity
+ traveller_rideshare_data
+ traveller_rideshare_preferences
+ traveller_rideshare_constraints.

traveller_rideshare_request_for_archive

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide data to the data archive
about the requests for rideshare as part of a traveller's proposed trip request. It consists of the following data item which is defined in its own DDE:

traveller_roadside_credit_identity

This data flow is sent from the Provide Electronic Payments Services function to the Provide Driver and Traveller Services function and contains the credit identity of a traveller using a roadside facility such as a kiosk. It is obtained as data input from the payment instrument terminator and consists of the following data item which is defined in its own DDE:

credit_identity.

traveller_roadside_trip_costs

This data flow is sent from the Provide Driver and Traveller Services function to the Provide Electronic Payment Services function. It contains the cost of a traveller's trip based on a previous trip request and confirmation input by the traveller from a roadside unit such as a kiosk. This cost is to be deducted from the credit currently stored on the traveller's payment instrument. The data flow includes the following data items each of which is defined in its own DDE:

kiosk_identity
+ stored_credit
+ traveller_total_trip_cost.

traveller_route

This data flow is used within the Provide Driver and Traveller Services function and is a special form of 'route' for traveller guidance only. It contains a subset of the data items included in the 'route' data flow to meet the requirements of pn-line traveller 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}.

traveller_route_accepted

This data flow is used within the Provide Driver and Traveller Services function and contains the acceptance by the traveller 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.

traveller_route_accepted_for_archive

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide data to the data archive about acceptance by the traveller of the previously provided route for on-line infrastructure based guidance. This data flow consists of the following data item which is defined in its own DDE:

traveller_route_accepted.

traveller_route_request
This data flow is used within the Provide Driver and Traveller Services function and contains data from which the route requested by a traveller 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
+ traveller_route_accepted
+ traveller_identity
+ traveller_location.

traveller_route_request_for_archive
This data flow is used within the Provide Driver and Traveller Services function. It is used to provide data to the data archive about data from which the route requested by a traveller can be determined, or that the previously provided data has been accepted. This data flow consists of the following data item which is defined in its own DDE:

traveller_route_request.

traveller_shelter_availability
This data flow contains the availability of shelters to be used during disasters by the Provide Information Services function.

traveller_shelter_location
This data flow contains the location of shelters to be used during disasters by the Provide Information Services function.

traveller_total_trip_cost
This data flow contains the total cost of a traveller's trip. This will be a trip that has been previously confirmed by the traveller from either a personal device 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 traveller's payment

traveller_traffic_condition_request
This data flow is used within the Provide Driver and Traveller Services function and contains details of the type of traffic information requested by a traveller from a kiosk. It consists of the following items each of which is defined in its own DDE:

kiosk_identity
+ traveller_traffic_data_type_request.

traveller_traffic_data_type_request
This data flow contains details of the type of traffic data that the traveller has requested for output to a kiosk or personal device. This data is used to set up the actual traffic data request that is sent to the Manage Traffic function. The size is set to enable one of each of the types of traffic data, current, long term, and predicted to be used.

traveller_traffic_information_data

This data store is used within the Provide Driver and Traveller Services function to hold data about traffic that may be requested by drivers or commuters from within a vehicle as advisory information. It contains the following data items each of which is defined in its own DDE:

planned_events
+ prediction_data
+ traffic_data_for_advisory_output
+ disaster_traveller_advisory
+ traveller_shelter_availability
+ traveller_shelter_location.

traveller_traffic_information_data_output

This data flow is used within the Provide Driver and Traveller Services function and contains the contents of the store of traffic data used to provide input for both local and wide area broadcast information output. The data is being sent from the store to a process for amalgamation with new data that has been obtained from the Manage Traffic function. The data flow consists of the following data item which is defined in its own DDE:

traveller_traffic_information_data.

traveller_traffic_information_data_update

This data flow is used within the Provide Driver and Traveller Services function and contains the contents of the store of traffic data used to provide input for both local and wide area broadcast information output. The data is being sent from a process to the store following its update with new data that has been obtained from the Manage Traffic function. The data flow consists of the following data item which is defined in its own DDE:

traveller_traffic_information_data.

traveller_traffic_preference_setting

This data flow contains information about the travellers preferences for receipt of traffic data. The data flow consists of the following data items each of which is defined in its own DDE:

setting_identity
+ list_size
+ list_size{setting_type
+ setting_preferences}.

traveller_traffic_profile

This data flow contains a traveller's personal profile for obtaining traffic information. This profile is submitted one time and then used to generate future personalized trip information. This profile supports a subscription type of information dissemination to the traveller. It consists of the following data items each of which is defined in its own DDE:

traveller_identity
+ traveller_contact_setting
+ traveller_device_setting
+ traveller_traffic_preference_setting.

traveller_transaction_confirmation

This data flow is used within the Provide Driver and Traveller Services function to confirm any reservations made by the traveller from a kiosk. These reservations will be based on information obtained by the traveller 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
+ yellow_pages_cost
+ yellow_pages_lodging_reservation_confirmation
+ yellow_pages_dining_reservation_confirmation
+ yellow_pages_ticket_purchase_confirmation.

traveller_transaction_request

This data flow is used within the Provide Driver and Traveller Services function and contains data input by the traveller at a kiosk to make reservations for various other (yellow pages) services. It contains the following data items, each of which is defined in its own DDE:

yellow_pages_dining_reservation
+ yellow_pages_lodging_reservation
+ yellow_pages_ticket_purchase.

traveller_transaction_request_for_archive

This data flow is used within the Provide Driver and Traveller Services function to provide data to the data archive about requests for reservations for various other(yellow pages) services via a kiosk. The data flow consists of the following data item which is defined in its own DDE:

traveller_transaction_request.

traveller_transit_condition_request

This data flow is used within the Provide Driver and Traveller Services function and contains details of the type of public transport information requested by the traveller from a kiosk. It consists of the following items each of which is defined in its own DDE:

kiosk_identity
+ traveller_transit_data_type_request.

traveller_transit_data_type_request

This data flow contains details of the type of public transport data that the traveller has requested for output to a kiosk or personal device. This data is used to set up the actual public transport services data request that is sent to the Manage Transit function. The size is set to enable one to be set for each of the types of public transport data, routes or schedules to be used.

traveller_transit_information_data

This store is used within the Provide Driver and Traveller Services function to hold data about public transport that may be requested by drivers or commuters from within a vehicle as advisory information. It contains the following data items each of which is defined in its own DDE:

transit_services_for_advisory_data

traveller_transit_information_data_output

This data flow is used within the Provide Driver and Traveller Services function and contains the contents of the store of public transport data used to provide input for both local and wide area broadcast information output. The data is being sent from the store to a process for amalgamation 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:

traveller_transit_information_data.

traveller_transit_information_data_update

This data flow is used within the Provide Driver and Traveller Services function and contains the contents of the store of public transport data used to provide input for both local and wide area broadcast information output. The data is being sent from a process to 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:

traveller_transit_information_data.

traveller_transit_preference_setting

This data flow contains information about the travellers preferences for receipt of public transport data. The data flow consists of the following data items each of which is defined in its own DDE:

setting_identity
+ list_size
+ list_size{setting_type
+ setting_preferences}.

traveller_transit_profile

This data flow contains a traveller's personal profile for obtaining public transport information. This profile is submitted one time and then used to generate future personalized trip information. This profile supports a subscription type of information dissemination to the traveller. It consists of the following data items each of which is defined in its own DDE:

traveller_identity
+ traveller_contact_setting
+ traveller_device_setting
+ traveller_transit_preference_setting.

traveller_trip_and_cond_requests_for_archive

This data flow is used within the Provider Driver and Traveller Services function. It is used to provide data to the data archive about requests made for trips or details of the current conditions, e.g., weather, events, incidents, etc. via a personal device or kiosk. It consists of the following data items each of which is defined in its own DDE:

traveller_personal_current_condition_request_for_archive
+ traveller_current_condition_request_for_archive
+ traveller_personal_trip_request_for_archive
+ traveller_trip_request_for_archive.

traveller_trip_confirmation

This data flow is used within the Provide Driver and Traveller Services function to confirm the trip details provided as the result of a traveller's previous trip request input from a kiosk. It contains the following data item which is defined in its own DDE:

paratransit_service_confirmation
+ traveller_identity
+ traveller_rideshare_confirmation.

traveller_trip_confirmation_for_archive

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide data to the data archive about the confirmation of trip details provided as the result of a traveller's previous trip request input from a kiosk. It consists of the following data item which is defined in its own DDE:

traveller_trip_confirmation.

traveller_trip_confirmation_information

This data flow is used within the Provide Driver and Traveller Services function and contains data confirming various aspects of a traveller's trip. It is sent as a result of a traveller previously requesting confirmation of a trip, the details of which were provided in response to data inputs from the traveller to the kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

traveller_payment_confirmation
+ traveller_transaction_confirmation
+ traveller_trip_information.

traveller_trip_information

This data flow is used within the Provide Driver and Traveller Services function and contains information about a proposed trip that the traveller 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
+ rideshare_response
+ 1{route

traveller_trip_payments_transactions

This data flow is used within the Provide Payment Electronic Services function and contains records of all payment transactions for the provision of other (yellow pages) services and advance toll, parking lot charges, or public transport fares as part of travellers'

traveller_trip_planning_requests

This data flow is used within the Provide Driver and Traveller Services function and contains data that the traveller 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
+ traveller_trip_request
+ transit_vehicle_deviation_request
+ traveller_trip_confirmation
+ traveller_payment_information
+ traveller_yellow_pages_information_request
+ traveller_transaction_request
+ traveller_traffic_condition_request
+ traveller_transit_condition_request.

traveller_trip_planning_responses

This data flow is used within the Provide Driver and Traveller Services function and contains the responses to various requests for information and trip planning services previously input by a traveller from a kiosk. The data will only cover those services
needed to fulfill the traveller's trip or information request. If the previous input from the traveller was a trip confirmation, the data will include either the credit identity or stored credit value originally supplied by the traveller's payment instrument. The data flow consists of the following data items each of which is defined in its own DDE:

kiosk_identity
+ transit_services_for_kiosks
+ transit_vehicle_schedule_deviations
+ traffic_data_for_kiosks
+ traveller_trip_information
+ traveller_payment_confirmation
+ traveller_yellow_pages_data
+ traveller_transaction_confirmation.

traveller_trip_request

This data flow is used within the Provide Driver and Traveller Services function and contains data about a traveller'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
+ traveller_identity
+ traveller_rideshare_request.

traveller_trip_request_for_archive

This data flow is used within the Provider Driver and Traveller Services function. It is used to provide data to the data archive about requests made for trips via a kiosk. It consists of the following data item which is defined in its own DDE:

traveller_trip_request.

traveller_yellow_pages_data

This data flow is used within the Provide Driver and Traveller Services function and contains details of other (yellow pages) services which is to be sent to the traveller interface facility for output using a kiosk. The size of the data flow has been set to take account of the need to provide only a small percentage of the total yellow pages data that is available. The data flow consists of the following data items each of which is defined in its own DDE:

kiosk_identity
+ yellow_pages_general_information
+ yellow_pages_specific_information
+ yellow_pages_transaction_information.

traveller_yellow_pages_information_request

This data flow is used within the Provide Driver and Traveller Services function and contains a request for data on other (yellow pages) services to be provided to a traveller at the identified kiosk. As no filtering components are included, all the data currently available will be provided. The data flow consists of the following data item which is defined in its own DDE:

kiosk_identity.

traveller_yellow_pages_information_request_for_archive

This data flow is used within the Provide Driver and Traveller Services function to provide data to the data archive about requests for data on other(yellow pages) services to be provided to a traveller via the identified kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

traveller_yellow_pages_information_request.

traveller_yellow_pages_requests

This data flow is used within the Provide Driver and Traveller Services function to transfer requests for yellow pages information from the traveller kiosk interface facility to the yellow pages data collection facility. It consists of the following data items each of which is defined in its own DDE:

traveller_payment_information
+ traveller_transaction_request
+ traveller_yellow_pages_information_request.

traveller_yellow_pages_requests_for_archive

This data flow is used within the Provide Driver and Traveller Services function to provide data to the data archive about requests for reservations or data to be returned to the traveller for various other (yellow pages) services via a personal device or kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

traveller_personal_transaction_request_for_archive
+ traveller_transaction_request_for_archive
+ traveller_personal_yellow_pages_information_request_for_archive
+ traveller_yellow_pages_information_request_for_archive.

trip_information

This data store is maintained within the Provide Driver and Traveller Services function and contains information about travellers' 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
+ list_size{current_conditions
+ multimodal_services_details
+ paratransit_personal_schedule
+ rideshare_response
+ route
+ route_cost
+ traveller_identity

trip_planning_data

This data flow is used within the Provide Driver and Traveller 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
+ traveller_route_request_for_archive
+ traveller_route_accepted_for_archive
+ trip_request_for_archive
+ vehicle_route_request_for_archive
+ vehicle_guidance_route_accepted_for_archive
+ route_guidance_data_for_archive
+ vehicle_guidance_probe_data_for_archive.

trip_planning_parameters

This data flow is used within the Provide Driver and Traveller Services function and contains parameters used for trip planning.

trip_request

This data flow is used within the Provide Driver and Traveller Services function as a means of specifying the parameters needed for a trip or route to be provided to a driver or traveller. It consists of the following data items each of which is defined in its own DDE:

origin
+ destination
+ departure_time
+ desired_arrival_time
+ preferences

trip_request_for_archive

This data flow is used within the Provide Driver and Traveller 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 traveller. 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_attributes

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide data attribute information to the data archive about the parameters needed for a trip or route to be provided to a driver or traveller. 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.

tro_equipment_status

This data flow contains information about the status of the railside 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_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_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).

tt_emergency_message

This data flow is used as part of the interface to the traveller by the Provide Driver and Traveller Services function. It contains the acknowledgment of a request for action by the Emergency Services previously submitted by the traveller.

tt_emergency_response
This data flow is used as part of the interface to the traveller by the Provide Driver and Traveller Services function. It contains acknowledgment of an emergency previously declared by a traveller from a kiosk.

tt_extra_trip_data_request
This data flow is used as part of the interface to the traveller by the Provide Driver and Traveller Services function. It contains outputs about the trip that the traveller has previously requested from a kiosk, or messages about the previous confirmation of

tt_guidance
This data flow is used as part of the interface to the traveller by the Provide Driver and Traveller Services function. It contains output (displays - text and/or graphics, and/or audio based information) which gives the traveller instructions on how to follow the route, e.g. cross the road, take a particular public transport service, use the lift for wheelchairs, etc.

tt_guidance_input_request
This data flow is sent to the traveller by the Provide Driver and Traveller Services function. It contains a request for the traveller 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 traveller by the Provide Driver and Traveller 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 traveller guidance.

tt_guidance_route_details
This data flow is sent to the traveller from the Provide Driver and Traveller Services function and contains details of the route that has been selected in response to the traveller's request for on-line guidance. The route and choice of guidance method will have been based on previous input from the traveller. Guidance will not begin until the traveller has positively accepted this data.

tt_personal_extra_trip_data_request
This data flow is used as part of the interface to the traveller by the Provide Driver and Traveller Services function. It contains outputs about the trip that the traveller has previously requested from a personal device, or messages about the previous

tt_personal_trip_planning_responses
This data flow is used as part of the interface to the traveller by the Provide Driver and Traveller Services function. It contains the result of requests for more data about the trip on which the traveller is requesting information from a personal device.

tt_trip_planning_responses
This data flow is used as part of the interface to the traveller by the Provide Driver and Traveller Services function. It contains the result of requests for more data about the trip on which the traveller is requesting information from a kiosk.

tta_archive_status
This data flow is sent to the toll 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).

tta_request_advanced_toll
This data flow is sent to the toll 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 reqester(s) and the toll segments in question.

tta_toll_price_changes_request
This data flow is sent from the Provide Electronic Payment Services function to the toll administrator. It contains data requesting a change to the current toll pricing structure so that travellers may be encouraged to change the modal split in their trips.

tta_transaction_reports
This data flow is sent to the toll 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.

ttd_batch_mode_data_transfer_status
This data flow is sent to the public transport vehicle driver by the Manage Transit function. It contains details of the result of the previous request for a transfer of public transport fare transaction data to the Provide Electronic Payment Services function for further processing. If the transfer or processing failed the driver may request it to be repeated.

ttd_corrective_instructions
This data flow is sent to the public transport vehicle driver by the Manage Transit function. It contains items of data which are designed to help the driver restore the public transport 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.

ttd_emergency_information
This data flow is sent to the public transport vehicle driver by the Manage Transit function. It contains an acknowledgment that the emergency request previously input by the driver has been received.

ttd_paratransit_information
This data flow is sent to the public transport vehicle driver by the Manage Transit function. It contains information about the paratransit schedule that the public transport driver 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 travellers at different locations along the route.

ttd_request_fare_transaction_mode_set_up
This data flow is sent from the public transport driver to the Manage Transit function. It contains a request that the driver inputs the mode of public transport 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

ttd_route_assignments
This data flow is sent to the public transport vehicle driver by the Manage Transit function. It contains information for the driver about route assignments from the regular driver work assignment facility.

ttd_transit_vehicle_schedule_deviations
This data flow is sent to the public transport vehicle driver by the Manage Transit function. It contains information for the driver on deviations from the public transport route and/or schedule in order that normal service operation can be provided.

ttfm_coordination_request
This data flow is sent to the public transport fleet manager by the Manage Transit function. It contains requests for input on the responses to be made to a particular emergency situation or incident.

ttfm_parameters
This data flow is sent to the public transport fleet manager by the Manage Transit function and contains a list of the currently available planning parameters that can be used to prepare public transport 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.

ttfm_paratransit_service
This data flow is sent to the public transport fleet manager by the Manage Transit function. It contains details of paratransit services as and when they are provided to travellers. 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.

ttfm_passenger_loading_error
This data flow is sent to the public transport fleet manager by the Manage Transit function and contains details of a miss-match in the passenger (commuter) data collected from the fare collection and data collection processes on-board a public transport 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

ttfm_proposed_corrections
This data flow is sent to the public transport fleet manager by the Manage Transit function. It contains details of the proposed corrective action to return a public transport 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.

ttfm_response_parameter_output
This data flow is sent to the public transport fleet manager by the Manage Transit function. It contains the output of the preplanned responses to incidents by and within the public transport operations area.

ttfm_technician_information
This data flow is sent to the public transport fleet manager by the Manage Transit function. It contains information about public transport 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.

ttfm_transaction_reports
This data flow is sent to the public transport fleet manager by the Provide Electronic Payments Services function. It contains details of the public transport 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.

ttfm_transit_driver_information
This data flow is sent to the public transport fleet manager by the Manage Transit function. It contains information about a public transport driver that is being used to generate work assignments 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.

ttfm_transit_services_output
This data flow is sent to the public transport fleet manager by the Manage Transit function and contains output of the current public transport 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.

ttfm_transit_vehicle_data
This data flow is sent to the public transport fleet manager by the Manage Transit function. It contains data about public transport 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

ttfm_transit_vehicle_maintenance_information
This data flow is sent to the public transport fleet manager by the Manage Transit function. It contains a report on the maintenance state of public transport 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.

ttmp_work_schedule
This data flow is sent to the public transport maintenance personnel by the Manage Transit function. It contains the schedule of work to be carried out to maintain the public transport 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.

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.

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_current_indicator_faults
This data flow is sent by the Manage Traffic function to the traffic operations personnel. It contains details of the data currently held in the store of current indicator faults and shows which indicators are faulty and the nature of the fault.

ttop_current_sensor_faults
This data flow is sent by the Manage Traffic function to the traffic operations personnel. It contains details of the data currently held in the store of current sensor faults and shows which sensors are faulty and the nature of the fault.

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_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

ttop_pollution_data_display
This data flow is sent by the Manage Traffic function to the traffic operations personnel. It contains details of both the pollution reference data and the current pollution state in the geographic area served by the ITS functions.

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_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. The information may concern current, long term, or predicted traffic data, or a combination of some or all of these

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_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_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.

ttso_archive_status
This data flow is sent to the public transport system operator 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).

ttso_emergency_request
This data flow is sent to the public transport system operator by the Manage Transit function and contains the emergency requests that have been input from either the public transport vehicle driver or the commuter.

ttso_media_parameters
This data flow is sent to the public transport system operator 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 public transport network that is automatically sent to the

ttso_potential_incidents_alarm
This data flow is sent to the public transport system operator by the Manage Transit function and contains information about a potential incident on board a public transport vehicle.

ttso_potential_security_problem
This data flow is sent to the public transport system operator by the Manage Transit function and contains information about a potential security problem that has been detected within the public transport system operating facilities, e.g. public transport stops, travel interchanges,

ttso_transaction_reports
This data flow is sent to the public transport system operator by the Provide Electronic Payments Services function. It contains details of the public transport fare payment transactions that have taken place.

ttso_transit_fare_output
This data flow is sent from the public transport system operator to the Provide Electronic Payment Services function. It contains the output of the current public transport fares held in the local data store.

ttso_video_image_data
This data flow is sent to the public transport system operator by the Manage Transit function and contains video image data. This will have been received by closed circuit television (cctv) systems located in the secure area environment and may contain images of

ttu_advisory_information
This data flow is used as part of the interface to the traveller by the Provide Driver and Traveller Services function. It contains displays of the traffic advisory, incident, and stop annunciation information produced in response to a previous traveller request.

ttu_other_services_roadside_confirmed
This data flow is sent to the commuter by the Manage Transit function. It contains a message giving the commuter at the roadside, i.e. the public transport stop, details of the success or failure of the request for other (yellow pages) services.

ttu_other_services_vehicle_confirmed
This data flow is sent to the commuter by the Manage Transit function. It contains a message giving the commuter on-board the vehicle details of the success or failure of the request for other (yellow pages) services.

ttu_roadside_access_message
This data flow is sent to the commuter by the Manage Transit function. It contains a message giving the commuter details of the success or failure of the fare transaction previously initiated from at the roadside, i.e. the public transport stop.

ttu_roadside_payment_confirmed
This data flow is sent to the commuter by the Manage Transit function. It contains a message giving the commuter at the roadside, i.e. the public transport stop, details of the success or failure of the payment transaction.

ttu_transit_information
This data flow is sent to the commuter by the Manage Transit function. It contains a message giving the commuter details of public transport services that are currently available.

ttu_transit_vehicle_information
This data flow is sent to the commuter 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 public transport stop.

ttu_traveller_information
This data flow is used as part of the interface to the traveller by the Provide Driver and Traveller Services function. It contains displays of the travel data, public transport routes and schedules, and other services (yellow pages) information produced in response to a previous traveller request.

ttu_vehicle_access_message
This data flow is sent to the commuter by the Manage Transit function. It contains a message giving the commuter details of the success or failure of the fare transaction previously initiated from on-board the vehicle.

ttu_vehicle_payment_confirmed
This data flow is sent to the commuter by the Manage Transit function. It contains a message giving the commuter on-board the vehicle details of the success or failure of the payment transaction.

twe_hri_status
This data flow provides a real-time indication of the status at a highway grade crossing (e.g. operational, not-operational,

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_maintenance_roadway_data
This data flow contains a environmental and roadway condition data collected by the Maintenance Management Function. The data may be processed or 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
+ list_size{station_id + sensor_identity + environment_sensor_output} +processed environment data.

tws_traffic_roadway_data
This data flow contains the roadway condition and environmental sensor data collected via roadside sensors that is provided to the Malaysian Meteorological Service.

tws_weather_archive_request
This data flow from the Manage Archived Data function to the National Meteorlogical 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 National Meteorlogical Service terminator. It is the status returned when weather archive data is sent from the terminator to the Manage Archived Data function.

typsp_provider_update_confirm
This data flow is sent to confirm that a request for registration or update of the yellow pages service provider's profile has been successfully completed. The provider can now expect to receive requests for yellow pages data from another process within this

typsp_transaction_request
This data flow is sent to the information and service provider from the Provide Driver and Traveller Services function and contains a request that payment for the associated yellow pages services is transacted.

typsp_yellow_pages_info_request
This data flow is used by the Provide Driver and Traveller 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 an available

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_routes
This data flow is used within the Manage Transit function to indicate that the public transport routes should be re-calculated based on the current planning parameters provided by the public transport fleet manager, the current operational data, plus the current public transport routes, and using digitized map data for road and freeway layout, etc.

update_schedules
This data flow is used within the Manage Transit function to indicate that the public transport schedules should be re-calculated based on the currently planning parameters.

usage_for_archive
This data flow is used within the Provide Driver and Traveller Services function to provide data to the data archive about current usage travellers are making of roads and other (non-public transport) methods of transport. It contains the following data items each of which is define in its own DDE:

current_other_routes_use_for_archive
+ current_road_network_use_for_archive.

usage_for_archive_attributes
This data flow is used within the Provide Driver and Traveller Services function to provide data attribute information to the data archive about current usage travellers are making of roads and other (non-public transport) methods of transport. 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
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

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.

variable_speed_limit_link_data

This data store is maintained by the Set Speed Limit process to maintain a database or speed limit changes over time for each segment in the network managed by the function. This data store includes the time and date when changes were made, the speed limit setting, and the rationale for the change.

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

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_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 (0) or unsafe (1).

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_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. Items 1 and 2 below may be sent together, as may item 2 plus item 4. Item 4 will not be sent without item 3.

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_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:

ahs_accel_decel_profile
+ ahs_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:

ahs_accel_decel_profile
+ ahs_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, automatic highway system (ahs) 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_action
This data flow contains instructions for corrective actions by public transport assets in order to maintain connection protection, either on a route by route basis, or on an individual passenger basis.

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

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 Traveller Services function to the Provide Vehicle Monitoring and Control function and contains data for use by the latter, details of a route that involves AHS 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:

ahs_route
+ vehicle_control_request
+ vehicle_location_for_incidents.

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 and other data for use in the management of vehicle traffic. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_smart_probe_data
+ vehicle_status_details_for_emissions
+ ahs_operational_data.

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 Traveller Services function. It contains information about each type of roadsign and the templates for messages which can be output to the driver via an in-vehicle display.

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_guidance_probe_data

This data flow is used within the Provide Driver and Traveller 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. This data will be used for in-vehicle guidance purposes. 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 used within the Provide Driver and Traveller Services function. It is used to provide data to the data archive about the time at which a vehicle was at a route segment end point. This data could 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.

vehicle_guidance_route

This data flow is used within the Provide Driver and Traveller 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 enroute. 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 Traveller 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_route_accepted_for_archive

This data flow is used within the Provide Driver and Traveller Services function. It is used to provide data to the data archive about acceptance by the driver of the previously provided route for on-line guidance. The data flow consists of the following data item which is defined in its own DDE:

vehicle_guidance_route_accepted.

vehicle_guidance_stored_data

This data flow is used within the Provide Driver and Traveller 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

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 highway system (ahs) lanes. It consists of the following items of data each of which is defined in its own DDE:

ahs_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_identity
This data flow is used within the Manage Commercial Vehicles function and contains the identity of a vehicle (16 characters).

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. It contains the vehicle's identity number (16 digits).

vehicle_identity.

vehicle_identity_for_driver_security_store
This data store is 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.

vehicle_identity.

vehicle_information
This data flow is sent from the Provide Vehicle Monitoring and Control function to the Provide Driver and Traveller 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 AHS lanes. It consists of the following data items each of which is defined in its own DDE:

ahs_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_input_data
This data is used within the Provide Driver and Traveller 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_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_for_advisories
This data flow is used within the Provide Driver and Traveller Services function and contains the vehicle's location as computed from data input to sensors controlled by the processes that determines vehicle location. This is a low precision data flow that has sufficient accuracy for filtering traveller 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 Traveller Services function and contains the vehicle's location as computed from sensor data. 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:

vehicle_location_for_cv

This data flow is sent from the Provide Driver and Traveller Services function to the Manage Commercial Vehicles function. It contains the vehicle location data for use in reporting on-board data to the commercial fleet manager, or the driver acting in this role. The data is computed from data input to sensors controlled by the processes that determines vehicle location. 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 Traveller Services function and contains the vehicle's location as computed from sensor data. 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:

vehicle_location_for_emergencies

This data flow is used within the Provide Driver and Traveller Services function. It contains the vehicle's location as computed from data input to sensors controlled by the processes that determines vehicle location. 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 is sent from the Provide Driver and Traveller Services function to the Manage Emergency Services function and contains a vehicle's location as computed from data input to sensors controlled by the processes that determines vehicle location. This is a high precision data flow that enables the location of an emergency vehicle to be pin-pointed 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 Traveller Services function. It contains the vehicle's location as computed from data input to sensors controlled by the processes that determines vehicle location. 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_maintenance

This data flow is sent from the Provide Driver and Traveller Services function to the Manage O&M function. It contains the vehicle's location as computed from data input to sensors controlled by the processes that determine vehicle location. This is a low precision data flow that will be refined using data obtained from on-board the maintenance vehicle. It consists of the
following data item which is defined in its own DDE:

location_identity.

vehicle_location_for_transit

This data flow is sent from the Provide Driver and Traveller Services function to the Manage Transit function. It contains the
vehicle's location as computed from data input to sensors controlled by the processes that determine vehicle location. This is a
low precision data flow that will be refined using data obtained from on-board the public transport vehicle. It 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 Traveller Services function. It contains details of the physical geometry of each road segment, including the location of such things as roadsigns, 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

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_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_output_data
This data is flow used within the Provide Driver and Traveller 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_probe_data
+ vehicle_guidance_route_accepted
+ vehicle_route_request.

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_pollution_alert
This data flow is used by the Manage Traffic function as a means of transferring current vehicle pollution 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
+ pollution_data_violation.

vehicle_pollution_message
This data flow is used within the Manage Traffic function as a means of transferring current vehicle pollution data from the Manage Emissions facility to the Provide Device Control facility. It contains data about the current levels of pollution 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_pollution_message_for_highways

vehicle_pollution_message_for_highways
This data flow is used within the Manage Traffic function and contains data about the current levels of pollution 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
+ pollution_output_message.

vehicle_pollution_message_for_roads

This data flow is used within the Manage Traffic function and contains data about the current levels of pollution 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
+ pollution_output_message.

vehicle_probe_data_amalgamation

This data flow is used within the Provide Driver and Traveller Services function and contains vehicle journey times for route segments. These journey times have been calculated from an amalgamation of the journey times provided from a variety of sources such as toll collection points and guided vehicles. This data will be used 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
+ list_size{route_segment_identity
+ route_segment_journey_time}.

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

vehicle_roadway_warning_data_output

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveller Services function. It contains data for use in producing in-vehicle signage displays related to warnings on hazardous conditions ahead. This may include environmental hazards or potential obstacles in the roadway.

vehicle_route

This data flow is used within the Provide Driver and Traveller 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 items each which is defined in its own DDE:

route.

vehicle_route_request

This data is flow used within the Provide Driver and Traveller 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_ahs_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_route_request_for_archive

This data flow is used within the Provide Driver and Traveller Services function to provide data to the data archive about requests 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 item which is defined in its own DDE:

vehicle_route_request.

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(eq. 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_sign_data

This data flow is used within the Manage Traffic function and contains data for use in producing in-vehicle signage displays. The information sent can fall into two categories - sign data and situation data. Sign data includes permanent fixed signs (eg. STOP, YIELD, etc), temporary signs (eg. detours), and dynamic message signs. Situation data provides information about traffic conditions, e.g. congestion and speed, on up to eight (8) links. Up to six (6) sets of indicator data may be contained within the data flow and they may be for the same or different types of indicator, or for incidents. 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
+ 6{vehicle_signage_output_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_highways.

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_fault

This data flow is used within the Manage Traffic function and contains an indication that a fault has been found with the processing of in-vehicle sign data by the process at the roadside.

vehicle_sign_data_output_location

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveller 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_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_current_incident_data
This data flow is used within the Manage Traffic function. It contains data about current incidents for output as part of in-vehicle signage data. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{current_incident_details}.

vehicle_signage_data
This data flow is sent from the Manage Traffic function to the Provide Driver and Traveller Services function. It contains data for use in producing in-vehicle signage displays. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_sign_data_output_location
+ 6{vehicle_signage_output_data}

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_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, etc.

vehicle_signage_incident_data
This data store is used within the Manage Traffic function. It contains data about current incidents and planned events for output as part of in-vehicle signage data. The data in the store consists of the following data items each of which is defined in its own DDE:

vehicle_signage_current_incident_data

vehicle_signage_incident_details
This data flow contains data that describes an incident in the area around the location of each of the roadside broadcast processes. The data is presented as a character code which represents the type (and possibly) extent of the incident.

vehicle_signage_output_data
This data flow is sent from the Manage Traffic function to the Provide Driver and Traveller Services function and contains data that represents the actual roadside traffic indicator outputs and incident details. 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 incident details will be for those incidents that are local to the roadside broadcast processes and will be used to provide driver and traveller information messages in the vehicle. 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_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_planned_event_data
This data flow is used within the Manage Traffic function. It contains data about planned events for output as part of in-vehicle signage data. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{planned_event_details}.

vehicle_signage_traffic_data
This data flow is used within the Manage Traffic and Provide Driver and Traveller 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_smart_probe_data
This data flow contains data which provides information about conditions in the vicinity of the smart probe. These conditions, which may be the indication of a hazard on the road or freeway that has been detected by sensors on-board the vehicle. The type of information measured could comprise but not be limited to such things as, temperature, fog, ice, snow, and road condition (e.g. wet, icy, dry). The data may be provided as distinct elements with actual measured values (e.g. temperature) or it could provide conditions from a list of codes.

vehicle_smart_probe_data_for_storage
This data flow is used within the Manage Traffic function. It contains the processed vehicle smart probe data collected from a roadside unit, which in turn have received data output by suitably equipped vehicles as they pass by. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_smart_probe_data_source
+ vehicle_smart_probe_data_indication.

vehicle_smart_probe_data_indication
This data flow contains the data from a vehicle mart 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

vehicle_smart_probe_data_output
This data flow contains the data obtained from vehicle smart probes, processed and formatted for output to vehicles as they pass

vehicle_smart_probe_data_output_fault
This data flow contains an indication that the output of vehicle smart probe data is faulty. This may be due to data not being received for output, or that the output process itself is at fault.

vehicle_smart_probe_data_source
This data flow is used within the Manage Traffic function. It contains the identity and location of the roadside unit that has collected a particular vehicle smart probe data. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_smart_probe_data_source_identity

vehicle_smart_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 a particular vehicle smart probe data. The data flow consists of the following data item which is defined in its own DDE:

unit_number.

vehicle_smart_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 a particular vehicle smart probe data. The data flow consists of the following data item which is defined in its own DDE:

location_identity.

vehicle_smart_probe_input_data
This data flow is used within the Manage Traffic function. It contains the raw data obtained from vehicle smart probes, with the identity of the roadside unit that received the data. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_smart_probe_data_source_identity

vehicle_smart_probe_stored_data
This data flow is used within the Manage Traffic function. It contains the processed vehicle smart probe data collected from roadside units. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{vehicle_smart_probe_data_for_storage}.

vehicle_speed
This data item is used within the Manage Traffic function and 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_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:

[ahs_accel_decel_profile | vehicle_accel_decel_profile | ahs_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 folowing 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 Traveller 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_status_details_for_driver_security
This data flow is sent from the Provide Vehicle Control and Monitoring function to the Provide Driver and Traveller 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 data item which is defined in its own DDE:

vehicle_status_details.

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 highway system (ahs) lane management and vehicle control. The data flow consists of the following data items each of which is defined in its own DDE:

ahs_control_data
+ intersection_collision_avoidance_data.

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(eg.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 associated.

vehicle_tag_data
This data flow is used within the Manage Traffic function. It contains the data from parking lot and toll tags on-board vehicles plus the identity of the unit which received the data. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_tag_data_source_identity

vehicle_tag_data_source_identity
This data flow is used within the Manage Traffic function. It contains the identity of the roadside unit that has collected a particular vehicle tag data. The data flow consists of the following data item which is defined in its own DDE:

unit_number.

vehicle_tag_data_source_location
This data flow is used within the Manage Traffic function. It contains the location of the roadside unit that has collected a particular vehicle tag data. The data flow consists of the following data item which is defined in its own DDE:

location_identity.

vehicle_tag_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_tag_data
+ vehicle_identity.

vehicle_tag_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_tag_data
+ vehicle_identity.

vehicle_tag_input_data
This data flow contains the data from parking lot and toll tags on-board vehicles which will be used to calculate vehicle journey times for links in the road (surface street) and freeway network served by the function. The data consists of a uniquely encoded form of the original tag data (using a large integer number) which will identify a particular tag, but not with its actual tag number. This is necessary to protect the identity of the tag while it is being used to calculate vehicle journey times.

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 Traveller 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
+ list_size{route_segment_identity
+ route_segment_journey_time_from_tolls}.

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. The data is stored as up to eight alphanumeric characters.

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_variable_speed_limit
This data flow contains the variable speed limit for a segment of roadway to be output to drivers via the Prepare and Output In-vehicle Displays process. This data is output as conditions change in an area to allow in-vehicle equipment to notify the driver or to initiate automated systems to control the speed.

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 DDE's:

identified_emergency_details
+ vehicle_status_details.

verified_signal_violation_data
This data flow contains the information on signal violations that have been verified. This data is gathered and forwarded to the Enforcement Agency in a given locale.

verified_speed_violation_data
This data flow contains the information on speed violations that have been verified. This data is gathered and forwarded to the Enforcement Agency in a given locale.

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.

violation_information
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.

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.

warning_data_for_highways
This data flow is used within the Manage Traffic function and contains the actual data from which warnings to the driver and traveller can be produced by indicators at the roadside on freeways in the geographic and/or jurisdictional area(s) served by the

warning_data_for_roads
This data flow is used within the Manage Traffic function and contains the actual data from which warnings to the driver and traveller can be produced by indicators at the roadside on streets in the geographic and/or jurisdictional area(s) served by the

wayside_status
This data flow represents the real-time status of the railside equipment at an HRI.

weather_archive_catalog
This data flow is used to provide the description of the data contained in the collection of weather data from the National Meteorlogical 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

weather_archive_catalog_request
This data flow from the Manage Archived Data function to the National Meteorlogical 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 National Meteorlogical 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 National Meteorlogical 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_archive
This data flow is sent by the National Meteorlogical 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_service_emergency_information
This data flow contains the relevant weather information to assist the emergency dispatch function to better respond to an

weather_service_information
This data flow consists of weather information that is provided by the Provide Driver and Traveller Services and Manage Traffic functions and is sent to the Provide Traffic Operations Personnel Traffic Data Interface. 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
+ fws-predicted_weather.

weather_service_information_request
This data flow requests weather information from the Provide Driver and Traveller Services and Manage Traffic functions. The data requested will provide weather conditions for the Provide Traffic Operations Personnel Traffic Data Interface.

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 Traffic Management Centre (TMC) and consists of the following data items each of which is defined in its own DDE:

pollution_state_area_collection
+ list_size
+ list_size{pollution_state_roadside_collection}.

work_zone_status
This data flow provides the status of individual work zone areas under the management of this Manage O&M function. This data allows the Manage Incidents to better respond and schedule around work activities in the region.

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.

yellow_pages_advisory_data
This data flow is used within the Provide Driver and Traveller Services function to provide yellow pages data to drivers and commuters in vehicles and/or confirmation of a previously requested reservation. It consists of the following data items each of which is defined in its own DDE:

yellow_pages_data_for_advisories
+ yellow_pages_cost
+ yellow_pages_dining_reservation_confirmation
+ yellow_pages_lodging_reservation_confirmation
+ yellow_pages_ticket_purchase_confirmation.

yellow_pages_advisory_requests
This data flow is used within the Provide Driver and Traveller Services function to request that data about yellow pages services be output to a driver or a commuter in a vehicle or that a yellow pages services reservation b made. The scope and public transport route number data will be provided by the driver or commuter, whilst the vehicle location will be provided automatically. The data flow consists of the following data items each of which is defined in its own DDE:

advisory_data_scope
+ vehicle_location_for_advisories
+ transit_route_number
+ transit_vehicle_identity
+ yellow_pages_dining_reservation
+ yellow_pages_lodging_reservation
+ yellow_pages_ticket_purchase.

yellow_pages_advisory_requests_for_archive
This data flow is used within the Provide Driver and Traveller Services function. It is used to provide data to the data archive about requests for yellow pages services to be output to a driver or a commuter in a vehicle or for a yellow page service reservation to be made. The data flow consists of the following data item which is defined in its own DDE:

yellow_pages_advisory_requests.

yellow_pages_cost
This data flow is used within the Provide Driver and Traveller Services and Provide Electronic Payments Services functions. It contains the cost of other (yellow pages) services such as hotels, restaurants, theaters, etc. that have been requested and/or confirmed by the traveller. The data flow consists of the following data item which is defined in its own DDE:

cost.

yellow_pages_data
This data flow is used within the Provide Driver and Traveller Services function to provide information on yellow pages (other) services that are currently available to the traveller. It consists of the following data items each of which is defined in its own DDE:

yellow_pages_general_information
+ yellow_pages_specific_information

yellow_pages_data_for_advisories

This data flow is used within the Provide Driver and Traveller Services function to provide yellow pages (other services) advisory data to drivers and travellers in vehicles. It only includes those services of whatever type that are relevant to the vehicles current location. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{yellow_pages_service_detail}.

yellow_pages_data_request

This data flow is used within the Provide Driver and Traveller Services function and is used to request the Manage Yellow pages Services facility to provide data on yellow pages (other) services.

yellow_pages_dining_information

This data flow is used within the Provide Driver and Traveller 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 character code will define the type of restaurant, diner, etc. and the description will define 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
+ list_size{yellow_pages_service_detail}.

yellow_pages_dining_reservation

This data flow is used within the Provide Driver and Traveller 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 traveller through a previous request.

yellow_pages_dining_reservation_confirmation

This data flow is used within the Provide Driver and Traveller 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

yellow_pages_food

This data flow is used within the Provide Driver and Traveller Services function and contains details of restaurants, fast food outlets, etc. in the area served by the function. The type character code will define the type of food and the description will define 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
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description

yellow_pages_gas_stations

This data flow is used within the Provide Driver and Traveller Services function and contains details of gas stations in the area served by the function. The type character code will define the facilities available at the gas station, e.g. toilets, shop, food, the type(s) of fuel supplied, etc. and the description will define 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
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

yellow_pages_general_information

This data flow is sent from the information and service providers terminator to the Provide Driver and Traveller 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:

yellow_pages_history
+ yellow_pages_local_customs
+ yellow_pages_people.

yellow_pages_history

This data flow is used within the Provide Driver and Traveller Services function and contains details of any sites of historic interest, etc. in the area served by the function. The type character code will define the type of site, e.g. War of 1812 battle site and the description will define 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
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location

yellow_pages_hospitals

This data flow is used within the Provide Driver and Traveller 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.), veterinary, etc. in the area served by the function. The type character code will define the type of hospital and the description will define 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
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description

yellow_pages_information_data

This data store is used within the Provide Driver and Traveller Services function to hold data about yellow pages information that may be requested by drivers or commuters from on-board vehicles. It consists of the following data item which is defined in its own DDE:

yellow_pages_local_customs

This data flow is used within the Provide Driver and Traveller Services function and contains details of local customs, etc. in the area served by the function. The description will define the customs themselves, e.g. the days on which shops close early, etc., whilst the location enables the data 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
+ list_size{yellow_pages_service_type
+ yellow_pages_service_description
+ yellow_pages_service_location}.

yellow_pages_lodging

This data flow is used within the Provide Driver and Traveller Services function and contains details of hotels, motels, etc. in the area served by the function. The type character code will define the type of hotel and the description will define 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
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

yellow_pages_lodging_reservation

This data flow is used within the Provide Driver and Traveller Services function and contains a request for the information and service providers to make a lodging reservation at a hotel or motel etc. from the information already provided to the traveller through a previous request.

yellow_pages_lodging_reservation_confirmation

This data flow is used within the Provide Driver and Traveller 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

yellow_pages_lodging_reservations

This data flow is used within the Provide Driver and Traveller 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 character code will define the type of hotel and the description will define 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
+ list_size{yellow_pages_service_detail}.

yellow_pages_new_data_request

This data flow is used within the Provide Driver and Traveller Services function and shows that a new information and service provider, or other information and service provider has been successfully registered and can be used as a source of yellow pages data. It includes the following data item which is defined in its own DDE:

yellow_pages_service_provider_identity.

yellow_pages_output

This data flow is used within the Provide Driver and Traveller Services function and is used to provide the process that updates the store of yellow pages data with the current set of data to which new data can be added or updated. It consists of the following data item which is defined in its own DDE:

yellow_pages_information_data.

yellow_pages_parking

This data flow is used within the Provide Driver and Traveller Services function and contains details of parking lots, on-street parking arrangements, etc. in the area served by the function. The type character code will define the type parking, e.g. privately managed lot, municipally owned lot, free parking, on-street parking, etc. and the description will define the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

yellow_pages_people

This data flow is used within the Provide Driver and Traveller Services function and contains details of important local people, e.g. mayor, chief of police, etc. in the area served by the function. The type character code will define the type of person and the description will define 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
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

yellow_pages_private_vehicle_parts_shops

This data flow is used within the Provide Driver and Traveller Services function and contains details of vehicle parts shops in the area served by the function. The type character code will define the type of vehicle parts available, e.g. engines, brakes, tires, mufflers, etc. and the description will define 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
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

yellow_pages_private_vehicle_repair_shops
This data flow is used within the Provide Driver and Traveller Services function and contains details of repair shops in the area served by the function. The type character code will define 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 description will define 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
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

yellow_pages_provider_payments_transactions
This data flow is used within the Provide Payment Electronic Services function and contains records of all payment transactions for the provision of other (yellow pages) services and registration of suppliers of these services.

yellow_pages_reservation_confirmation
This data flow is used within the Provide Driver and Traveller Services function to confirm any reservations made by the traveller. It contains the following data items, each of which is defined in its own DDE:

transaction_number
+ traveller_identity
+ yellow_pages_cost
+ yellow_pages_dining_reservation_confirmation
+ yellow_pages_lodging_reservation_confirmation
+ yellow_pages_ticket_purchase_confirmation.

yellow_pages_reservation_request
This data flow is used within the Provide Driver and Traveller Services function by the commuter to make reservations for other (yellow pages) services. It contains the following data items, each of which is defined in its own DDE:

yellow_pages_dining_reservation
+ yellow_pages_lodging_reservation
+ yellow_pages_ticket_purchase.

yellow_pages_rest_areas
This data flow is used within the Provide Driver and Traveller Services function and contains details of test areas adjacent to roads and highways in the area served by the function. The type character code will define the facilities available at the rest area, e.g. toilets, food, etc. and the description will define 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
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

yellow_pages_service_availability
This data flow is used within the Provide Driver and Traveller Services function and contains a character code that is used to
define what is actually available from the yellow pages 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 of 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, etc.

yellow_pages_service_contact
This data flow contains a character code that is used to define the telephone, fax or e-mail contact number for the yellow pages service that is being provided. The actual number will be proceeded by a character code to show its type.

yellow_pages_service_cost
This data flow is used within the Provide Driver and Traveller Services function and contains the cost of an associated yellow pages service which is currently available. It consists of the following data item which is defined in its own DDE:

cost.

yellow_pages_service_date
This data flow is used within the Provide Driver and Traveller Services function and contains the date on which an associated yellow pages service will be available. It consists of the following data item which is defined in its own DDE:

date.

yellow_pages_service_description
This data flow is used within the Provide Driver and Traveller Services function and contains a thirty character string that describes the yellow pages 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, etc.

yellow_pages_service_detail
This data flow is used within the Provide Driver and traveller Services function. It contains details of the providers of those services of whatever type that are relevant to a vehicle's current location. The data flow consists of the following data items each of which is defined in its own DDE

yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_cost
+ yellow_pages_service_date
+ yellow_pages_service_description
+ yellow_pages_service_location
+ yellow_pages_service_time
+ yellow_pages_service_availability.

yellow_pages_service_location
This data flow is used within the Provide Driver and Traveller Services function and contains the geographic location at which an associated yellow pages service will be available. It consists of the following data item which is defined in its own DDE:

location_identity.

yellow_pages_service_provider_area
This data flow contains a list of the geographic area(s) served by an individual yellow pages service provider.

yellow_pages_service_provider_attributes
This data flow contains the details of the services that are provided by an individual yellow pages service 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.

yellow_pages_service_provider_contact
This data flow contains the details of how to contact (send data to, obtain information from) an individual yellow pages service 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.

yellow_pages_service_provider_data
This data store contains data about individual yellow pages service providers. It enables details of up to one hundred (100) providers to be stored. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{yellow_pages_service_provider_details
+ yellow_pages_service_provider_identity}.

yellow_pages_service_provider_details
This data flow is used within the Provide Driver and Traveller Services function and contains data about individual yellow pages service 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:

yellow_pages_service_provider_name
+ yellow_pages_service_provider_contact
+ yellow_pages_service_provider_attributes

yellow_pages_service_provider_identity
This data flow contains the identity of an yellow pages service provider. It enables a unique identifier to be applied, as for other identities used for such things as vehicles, drivers, travellers, etc.

yellow_pages_service_provider_name
This data flow contains the name of an individual yellow pages service provider. The data flow enables the name to be accommodated without any abbreviations.

yellow_pages_service_provider_registration_request
This data flow is sent from the Provide Driver and Traveller 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 yellow pages data to another process in the Provide Driver and Traveller Services function. The data flow contains the following data item which is defined in its own DDE:

credit_identity
+ yellow_pages_service_provider_identity.

yellow_pages_service_provider_registration_response
This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveller Services function and contains the response to a previous request for payment of the registration fee for a yellow pages service provider to supply yellow pages data to another process in the Provide Driver and Traveller Services function. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ yellow_pages_service_provider_identity.

yellow_pages_service_reservation_number
This data flow contains the confirmation number for a yellow pages service 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.

yellow_pages_service_time
This data flow is used within the Provide Driver and Traveller Services function and contains the time at which an associated yellow pages service will be available. It consists of the following data item which is defined in its own DDE:

time.

yellow_pages_service_type
This data flow is used within the Provide Driver and Traveller Services function and contains a three character code that is used to define the type of yellow pages service that is being provided. The three character code will use alphanumeric characters and 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.

yellow_pages_special_events
This data flow is used within the Provide Driver and Traveller Services function and contains details of special events such as parades, fairs, exhibitions, conventions, etc. in the area served by the function. The type character code will define the type of event and the description will define 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
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

yellow_pages_specific_information

This data flow is sent from the information and service providers terminator to the Provide Driver and Traveller 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:

yellow_pages_food
+ yellow_pages_gas_stations
+ yellow_pages_hospitals
+ yellow_pages_lodging
+ yellow_pages_private_vehicle_repair_shops
+ yellow_pages_private_vehicle_parts_shops
+ yellow_pages_parking
+ yellow_pages_rest_areas
+ yellow_pages_special_events
+ yellow_pages_tourist_activities

yellow_pages_ticket_information

This data flow is used within the Provide Driver and Traveller 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 character code will define the type of activity or service and the description will define the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{yellow_pages_service_detail}.

yellow_pages_ticket_purchase

This data flow is used within the Provide Driver and Traveller 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 traveller through a previous request.

yellow_pages_ticket_purchase_confirmation

This data flow is used within the Provide Driver and Traveller 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

yellow_pages_tourist_activities

This data flow is used within the Provide Driver and Traveller Services function and contains details of tourist specific activities in the area served by the function. The type character code will define the type of activity and the description will define 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
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location

yellow_pages_tourist_services

This data flow is used within the Provide Driver and Traveller Services function and contains details of travel agents in the area served by the function. The type character code will define the service(s) provided by the agent and the description will define the agent's address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

yellow_pages_transaction_information

This data flow is sent from the information and service providers terminator to the Provide Driver and Traveller 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:

yellow_pages_lodging_reservations
+ yellow_pages_dining_information

yellow_pages_update

This data flow is used within the Provide Driver and Traveller Services function and is a new copy of yellow pages data from the process that updates the store of that data. It consists of the following data item which is defined in its own DDE:

yellow_pages_information_data.

yellow_pages_update_request

This data flow is used within the Provide Driver and Traveller Services function to request an update of the yellow pages data currently available to travellers. 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

yellow_pages_update_response

This data flow is used within the Provide Driver and Traveller Services function to answer the request for yellow pages information It consists of the following data item which is defined in its own DDE:

yellow_pages_data.