National ITS Architecture
Logical Architecture – Volume III
Data Dictionary

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actuator_commands

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

steering_commands
+ lane_steering_commands
+ brake_commands
+ throttle_commands.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

admin_cleansing_parameters

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

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:

SIZE=32;

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.

Additional Sizing Assumptions:
None

advanced_charges

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

credit_identity
+ parking_lot_identity
+ parking_space_details
+ stored_credit
+ traveler_identity
+ vehicle_identity.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

advanced_charges_payment_list

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

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

Additional Sizing Assumptions:
SIZE=list_size+MAX_ADV_CHARGES{credit_identity+parking_lot_cost
+parking_space_details+vehicle_identity};

advanced_fare_billing

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

credit_identity
+ stored_credit
+ transit_fare
+ traveler_identity.

Additional Sizing Assumptions:
None

advanced_fare_billing_needed

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

confirmation_flag.

Additional Sizing Assumptions:
None

advanced_fare_details

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

credit_identity
+ stored_credit
+ transit_journey_date
+ transit_route_destination
+ transit_route_origin.

Additional Sizing Assumptions:
None

advanced_fare_payment_list

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

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

Additional Sizing Assumptions:
None

advanced_fare_transactions

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

credit_identity
+ date
+ stored_credit
+ time
+ transit_fare
+ traveler_identity.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:

SIZE=0.6{advanced_fare_details} + 0.6{advanced_parking_lot_charges);

advanced_fares_and_charges_response

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

confirmation_flag
+ credit_identity
+ parking_lot_cost
+ stored_credit
+ transit_fare.

Additional Sizing Assumptions:
None

advanced_fares_confirm

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

confirmation_flag.

Additional Sizing Assumptions:
None

advanced_fares_needed

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

credit_identity
+ stored_credit
+ transit_route_origin
+ transit_route_destination
+ transit_journey_date
+ traveler_identity.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

advanced_other_charges_request

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

credit_identity
+ parking_lot_identity
+ parking_space_details
+ stored_credit
+ vehicle_identity.

Additional Sizing Assumptions:
None

advanced_other_fares_confirm

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

confirmation_flag
+ credit_identity
+ stored_credit
+ transit_fare
+ traveler_identity.

Additional Sizing Assumptions:
None

advanced_other_fares_request

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

credit_identity
+ stored_credit
+ transit_route_origin
+ transit_route_destination
+ transit_journey_date
+ traveler_identity.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

advanced_other_tolls_request

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

credit_identity
+ stored_credit
+ toll_route_segments
+ vehicle_identity.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

advanced_parking_lot_prices

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

parking_lot_prices.

Additional Sizing Assumptions:
SIZE=parking_lot_identity+PARKING_LOTS{parking_lot_price+parking_lot_charge_application_time
+vehicle_type_for_charges};

advanced_parking_payment_update

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

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

Additional Sizing Assumptions:
SIZE=list_size+MAX_ADV_CHARGES{credit_identity+parking_lot_cost
+parking_space_details+vehicle_identity};

advanced_toll_billing

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

credit_identity
+ stored_credit
+ toll_cost
+ toll_route_segments
+ vehicle_identity.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

advanced_toll_payment_list

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

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

Additional Sizing Assumptions:
SIZE=list_size+MAX_ADV_TOLLS{credit_identity+toll_cost+toll_segments+vehicle_identity};

advanced_toll_payment_update

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

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

Additional Sizing Assumptions:
SIZE=list_size+MAX_ADV_TOLLS{credit_identity+toll_cost+toll_segments+vehicle_identity};

advanced_toll_transactions

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

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

Additional Sizing Assumptions:
None

advanced_tolls

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

credit_identity
+ stored_credit

+ toll_route_segments
+ vehicle_identity.

Additional Sizing Assumptions:
None

advanced_tolls_and_charges_roadside_confirm

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

advanced_charges_confirm
+ advanced_tolls_confirm
+ confirmation_flag.

Additional Sizing Assumptions:
None

advanced_tolls_and_charges_roadside_request

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

advanced_charges
+ advanced_tolls.

Additional Sizing Assumptions:
SIZE=0.6{advanced_charges} + 0.6{advanced_tolls};

advanced_tolls_and_charges_vehicle_confirm

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

advanced_charges_confirm
+ advanced_tolls_confirm
+ confirmation_flag.

Additional Sizing Assumptions:
None

advanced_tolls_and_charges_vehicle_request

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

advanced_charges
+ advanced_tolls.

Additional Sizing Assumptions:
SIZE=0.6{advanced_charges} + 0.6{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.

Additional Sizing Assumptions:
SIZE=0.6{advanced_fare_details} + 0.6{advanced_tolls};

advanced_tolls_and_fares_response

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

confirmation_flag
+ credit_identity
+ stored_credit
+ toll_cost
+ transit_fare.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

advanced_traveler_charges_confirm

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

confirmation_flag
+ parking_lot_cost
+ stored_credit
+ traveler_identity.

Additional Sizing Assumptions:
None

advanced_traveler_charges_request

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

credit_identity
+ parking_space_details
+ stored_credit
+ vehicle_identity.

Additional Sizing Assumptions:
None

advanced_traveler_fares_confirm

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

confirmation_flag
+ stored_credit
+ transit_fare
+ traveler_identity.

Additional Sizing Assumptions:
None

advanced_traveler_fares_request

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

credit_identity
+ stored_credit
+ transit_route_origin
+ transit_route_destination
+ transit_journey_date
+ traveler_identity.

Additional Sizing Assumptions:
None

advanced_traveler_tolls_confirm

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

confirmation_flag
+ stored_credit
+ toll_cost
+ traveler_identity.

Additional Sizing Assumptions:
None

advanced_traveler_tolls_request

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

credit_identity
+ stored_credit
+ toll_route_segments
+ vehicle_identity.

Additional Sizing Assumptions:
None

advisory_data

This data flow is used within the Provide Driver and Traveler Services function to provide traffic and travel advisory data to drivers and travelers 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.

Additional Sizing Assumptions:
None

advisory_data_request

This data flow is used within the Provide Driver and Traveler Services function to request that advisory data be output to a driver or a traveler in a vehicle. The scope and transit route number data will be provided by the driver or traveler, and 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.

Additional Sizing Assumptions:
None

advisory_data_request_for_archive

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

advisory_data_request.

Additional Sizing Assumptions:
None

advisory_data_scope

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

Additional Sizing Assumptions:
SIZE=1;

advisory_display_type

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

Additional Sizing Assumptions:
SIZE=1;

advisory_requests_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about the requests for advisory data, yellow pages services, or yellow pages reservations to be output to a driver or traveler (including a user of the transit system) 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
+ evacuation_traveler_information_request_for_vehicle.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1024000;

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) lanes, whether or not it is part of a platoon. The data flow consists of the following data item which is defined in its own DDE:

vehicle_accel_decel_data.

Additional Sizing Assumptions:
None

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
+ unit_number.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=128;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size
+MAX_AHS_CHECKS{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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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 traveling, together with the lane identity. The types of AHS lanes include: entry lane, running lane, exit lane, exit lane ahead, transfer lane, transfer lane ahead. Entry and running lane will be accompanied by the lane identity. Exit lane ahead and transfer lane ahead will be accompanied by the identity of the AHS lane to which the exit lane leads, plus the direction (left or right). Transfer lane is used for a particular type of exit lane and will be accompanied by the identity of the AHS lane being joined. Exit lane is used for a lane taking vehicles to a lane on which AHS operation is not supported. .

Additional Sizing Assumptions:
SIZE=2;

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 while traveling 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.

Additional Sizing Assumptions:
None

ahs_demand_headway

This data flow contains the headway to be used by a vehicle over its entire speed range while in automatic control mode and traveling on 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.

Additional Sizing Assumptions:
None

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 one hour. .

Additional Sizing Assumptions:
SIZE=2;

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 while in automatic control mode and traveling 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.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_AHS_SEGS{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}.

Additional Sizing Assumptions:
SIZE=list_size+AHS_SAMPLE_RATE{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.

Additional Sizing Assumptions:
None

ahs_route

This data flow is sent by the Provide Driver and Traveler Services function to the Provide Vehicle Control and Monitoring function. It is a special form of route for vehicles only using automatic 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 Traveler 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}.

Additional Sizing Assumptions:
SIZE=NUM_SEGS{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
+ list_size{route_segment_identity}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_SEGS{route_segment_identity};

ahs_route_request

This data flow is sent from the Provide Vehicle Control and Monitoring function to the Provide Driver and Traveler Services function to request a vehicle route that can only be used by vehicles equipped for automatic 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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=2;

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_lane_use_data.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE = 128;

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. .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
None

air_services_costs

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

cost.

Additional Sizing Assumptions:
SIZE=6{cost};

air_services_destination

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

route_point.

Additional Sizing Assumptions:
None

air_services_destination_arrival_time

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

time.

Additional Sizing Assumptions:
None

air_services_details

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

air_services_costs
+ air_services_routes
+ air_services_schedules.

Additional Sizing Assumptions:
None

air_services_intermediate_arrival_time

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

time.

Additional Sizing Assumptions:
None

air_services_intermediate_depart_time

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

time.

Additional Sizing Assumptions:
None

air_services_intermediate_point

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

route_point.

Additional Sizing Assumptions:
None

air_services_origin

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

route_point.

Additional Sizing Assumptions:
None

air_services_origin_depart_time

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

time.

Additional Sizing Assumptions:
None

air_services_route_details

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

air_services_origin
+ air_services_intermediate_point
+ air_services_destination.

Additional Sizing Assumptions:
None

air_services_routes

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

air_services_route_details.

Additional Sizing Assumptions:
SIZE=3{air_services_route_details};

air_services_schedule_details

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

air_services_origin_depart_time
+ air_services_intermediate_arrival_time
+ air_services_intermediate_depart_time
+ air_services_destination_arrival_time.

Additional Sizing Assumptions:
None

air_services_schedules

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

air_services_schedule_details.

Additional Sizing Assumptions:
SIZE=6{air_services_schedule_details};

air_services_status

This data flow is used within the Provide Driver and Traveler Services function and contains the status of nearby airports (open or closed, general flight delays, etc.). .

Additional Sizing Assumptions:
SIZE=16;

alert_and_threats_for_maint_field_personnel

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

list_size{list_size{threat_severity
+ threat_duration

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

Additional Sizing Assumptions:
None

alert_and_threats_for_maint_personnel

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

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

Additional Sizing Assumptions:
None

alert_duration

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

duration.

Additional Sizing Assumptions:
None

alert_notification_for_toll_operator

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

alert_severity
+ alert_type.

Additional Sizing Assumptions:
None

alert_notification_status_from_maint

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

alert_severity
+ alert_type.

Additional Sizing Assumptions:
None

alert_notification_status_from_tolls

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

alert_severity
+ alert_type.

Additional Sizing Assumptions:
None

alert_notification_status_from_traffic

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

alert_severity
+ alert_type.

Additional Sizing Assumptions:
None

alert_notification_status_from_transit

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

alert_severity
+ alert_type.

Additional Sizing Assumptions:
None

alert_notification_status_from_travelers

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

alert_severity
+ alert_type.

Additional Sizing Assumptions:
None

alert_severity

This data flow defines the severity of an alert. .

Additional Sizing Assumptions:
SIZE=3;

alert_type

This data flow identifies the type of alert. .

Additional Sizing Assumptions:
SIZE=24;

alerts_and_advisories_for_incident_detection

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

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

Additional Sizing Assumptions:
None

alerts_and_advisories_for_threat_analysis

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

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

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1024;

analyzed_env_and_weather_data

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

env_and_weather_data
+ source_reliability_information.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=128;

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.. .

Additional Sizing Assumptions:
SIZE = 128;

approaching_train_data

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

train_alert
+ train_direction
+ train_id
+ train_dynamics.

Additional Sizing Assumptions:
None

approved_corrective_plan

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

transit_route_corrections
+ transit_changes_in_stops
+ transit_changes_in_speed.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

archive_data

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

formatted_archive_data
+ formatted_archive_data_attributes
+ formatted_archive_catalog
+ archive_permissions.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=200000;

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. .

Additional Sizing Assumptions:
SIZE=1024;

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. .

Additional Sizing Assumptions:
SIZE=1024;

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
+ environmental_sensor_status.

Additional Sizing Assumptions:
None

archive_manage_emergency_vehicle_data

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

emergency_vehicle_status_data.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=102400;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=pollution_state_area_collection+list_size+POLLUTION_POINTS

{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. 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.

Additional Sizing Assumptions:
None

archive_provide_emergency_service_allocation_data

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

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=512;

area_air_quality_index

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

Additional Sizing Assumptions:
SIZE=1;

arrival_time

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

time.

Additional Sizing Assumptions:
None

asset_archive_catalog

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

Additional Sizing Assumptions:
SIZE=32;

asset_archive_catalog_request

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

Additional Sizing Assumptions:
SIZE=32;

asset_archive_data_request

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

Additional Sizing Assumptions:
SIZE=32;

asset_damage

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

Additional Sizing Assumptions:
SIZE=64;

asset_data

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

Additional Sizing Assumptions:
SIZE=32;

asset_data_attributes

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

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

Additional Sizing Assumptions:
None

asset_data_for_archive

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

asset_data
+ asset_data_attributes.

Additional Sizing Assumptions:
None

asset_restrictions_for_com_veh

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

current_asset_restrictions.

Additional Sizing Assumptions:
None

asset_restrictions_for_emerg

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

current_asset_restrictions.

Additional Sizing Assumptions:
None

asset_restrictions_for_info_provider

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

current_asset_restrictions.

Additional Sizing Assumptions:
None

asset_restrictions_for_traffic

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

current_asset_restrictions.

Additional Sizing Assumptions:
None

asset_restrictions_for_transit

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

current_asset_restrictions.

Additional Sizing Assumptions:
None

assignment_data

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

cv_driver_number
+ cv_route_number
+ cv_vehicle_number
+ freight_equipment_number.

Additional Sizing Assumptions:
None

assignment_mismatch_warning

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

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

Additional Sizing Assumptions:
None

ats_advisory

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

Additional Sizing Assumptions:
SIZE = 128;

ats_alert

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

Additional Sizing Assumptions:
SIZE = 128;

ats_status

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

Additional Sizing Assumptions:
SIZE = 128;

ats_warning_notification

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

Additional Sizing Assumptions:
SIZE = 128;

audio_control_data

This data flow contains control parameters for an audio system. .

Additional Sizing Assumptions:
SIZE=8;

audio_fault_data

This data flow is used to report the status of an audio surveillance device, providing the its configuration as well as a fault indication. .

Additional Sizing Assumptions:
SIZE=24;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=32;

auto_treat_equip_status_for_m_and_c

This data flow provides a report to the Manage Maintenance and Construction function of the status of automated roadway treatment systems, such as anti-icing systems, etc. and the adjoining dynamic message sign (DMS) equipment that alerts drivers to these conditions. By monitoring this data flow, the receiving process can assess the

health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

auto_treatment_activation_data

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

Additional Sizing Assumptions:
SIZE=16;

auto_treatment_device_control

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

Additional Sizing Assumptions:
SIZE=32;

auto_treatment_system_control

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

auto_treatment_device_control
+ env_sensor_control_by_roadway_treatment_device
+ dms_auto_treat_data_from_maint.

Additional Sizing Assumptions:
None

auto_treatment_system_status

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

list_size + list_size{station_id
+ device_identity
+ auto_treatment_activation_data}.

Additional Sizing Assumptions:
None

auto_treatment_system_status_for_archive

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

list_size + list_size{station_id
+ device_identity
+ auto_treatment_activation_data}.

Additional Sizing Assumptions:
None

auto_treatment_system_status_for_archive_attributes

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

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

Additional Sizing Assumptions:
None

auto_treatment_system_status_for_personnel

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

list_size + list_size{station_id
+ device_identity
+ auto_treatment_activation_data}.

Additional Sizing Assumptions:
None

automated_lane_changing_control_data

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

Additional Sizing Assumptions:
SIZE=64;

autonomous_traveler_guidance_accepted

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

Additional Sizing Assumptions:
SIZE=1;

autonomous_traveler_guidance_data

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

route
+ route_cost.

Additional Sizing Assumptions:
None

autonomous_traveler_guidance_data_request

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

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

Additional Sizing Assumptions:

None

autonomous_vehicle_guidance_accepted

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

Additional Sizing Assumptions:
SIZE=1;

autonomous_vehicle_guidance_data

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

route
+ route_cost.

Additional Sizing Assumptions:
None

autonomous_vehicle_guidance_data_request

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

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

Additional Sizing Assumptions:
None

available_transit_operators

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

transit_vehicle_operator_availability.

Additional Sizing Assumptions:
None

available_transit_vehicles

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

transit_vehicle_availability.

Additional Sizing Assumptions:
None

background_strategy

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

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

Additional Sizing Assumptions:
SIZE=list_size
+MAX_STRATEGIES{strategy_start_time+strategy_end_time+strategy_day+strategy_date
+selected_strategy_type+selected_strategy_data};

bad_charge_payment_list

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

list_size
+ list_size{credit_identity}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_BAD_PAYERS{credit_identity};

bad_fare_payment_list

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

list_size
+ list_size{credit_identity}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_BAD_PAYERS{credit_identity};

bad_tag_list_request

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

transit_vehicle_identity.

Additional Sizing Assumptions:
None

bad_tag_list_update

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

transit_vehicle_identity
+ list_size
+ list_size{credit_identity}.

Additional Sizing Assumptions:
SIZE=transit_vehicle_identity+list_size+MAX_BAD_PAYERS{credit_identity};

bad_toll_payment_list

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

list_size
+ list_size{credit_identity + cv_carrier_number}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_BAD_PAYERS{credit_identity+cv_carrier_number};

bad_transit_collected_fare_payment

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

enforcement_agency_contact
+ enforcement_agency_details
+ fare_violation_information.

Additional Sizing Assumptions:
None

bad_transit_fare_payment_data

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

bad_transit_collected_fare_payment
+ bad_transit_vehicle_fare_payment
+ bad_transit_roadside_fare_payment.

Additional Sizing Assumptions:
None

bad_transit_roadside_fare_payment

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

enforcement_agency_contact
+ enforcement_agency_details
+ fare_collection_roadside_violation_information.

Additional Sizing Assumptions:
None

bad_transit_tag_data

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

list_size
+ list_size{credit_identity}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_BAD_PAYERS{credit_identity};

bad_transit_vehicle_fare_payment

This data flow is used within the Manage Transit function and contains details from the data store about the contacts for an enforcement agency and the method by which it should be contacted. This is the agency to which data should be sent about each transit fare payment violation when it is received from the Provide Electronic Payment Services function. This data flow is also used by the Manage Transit function to send data about a violator of the transit fare collection processes on-board the vehicle to the Manage Emergency Services function. This data flow will contain a digitized video image of the traveler who is trying to violate the fare collection process on-board

a vehicle. It is assumed that this digitized data will include other data such as date and time, plus camera identity from which the transit vehicle identity can be determined. The data flow contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details
+ fare_collection_vehicle_violation_information.

Additional Sizing Assumptions:
None

barrier_control_request

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

Additional Sizing Assumptions:
SIZE = 128;

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. .

Additional Sizing Assumptions:
SIZE = 128;

barrier_device_control_state

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

Additional Sizing Assumptions:
SIZE = 128;

barrier_info

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

Additional Sizing Assumptions:
SIZE=8;

barrier_safeguard_activation_request_from_operator

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

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

Additional Sizing Assumptions:
None

barrier_safeguard_system_status_to_operator

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

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

barrier_system_activation_request_for_detours

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

list_size + list_size{station_id
+ device_identity
+ barrier_system_control_request}.

Additional Sizing Assumptions:
None

barrier_system_activation_request_from_emerg

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

list_size + list_size{station_id
+ device_identity
+ barrier_system_control_request}.

Additional Sizing Assumptions:
None

barrier_system_activation_request_from_operator

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

list_size + list_size{station_id
+ device_identity
+ barrier_system_control_request}.

Additional Sizing Assumptions:
None

barrier_system_control

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

list_size + list_size{station_id
+ device_identity
+ barrier_system_control_data}.

Additional Sizing Assumptions:
None

barrier_system_control_data

This data flow provides control commands for a single barrier system. These commands can be used to configure the gate or barrier and to define the conditions under which the barrier system is activated. .

Additional Sizing Assumptions:
SIZE=32;

barrier_system_control_request

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

Additional Sizing Assumptions:
SIZE=32;

barrier_system_data_for_archive

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

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

barrier_system_device_status

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

list_size + 1{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

barrier_system_equip_status_for_m_and_c

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

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

barrier_system_status

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

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

barrier_system_status_for_detours

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

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

barrier_system_status_to_emerg

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

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

barrier_system_status_to_operator

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

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

basic_mcv_measures_for_maint_sched

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

vehicle_id_for_mcv
+ vehicle_system_status.

Additional Sizing Assumptions:
None

basic_mcv_measures_for_mcv_operator

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

vehicle_system_status.

Additional Sizing Assumptions:
None

bike_route_information

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

Additional Sizing Assumptions:
SIZE=20480;

billing_for_charges_needed

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

advanced_charges_billing_needed
+ parking_lot_tag_data
+ parking_lot_cost
+ vehicle_identity.

Additional Sizing Assumptions:
None

billing_for_fares_needed

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

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

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

border_crossing_request

This request contains necessary enrollment information for commercial vehicle international border crossings. This flow will typically provide information about the carrier or freight forwarder, the vehicle, the driver and the current trip including a cargo declaration. .

Additional Sizing Assumptions:
SIZE = 128;

border_database

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

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

Additional Sizing Assumptions:
SIZE=list_size+CVO_VEHS{cvo_declaration+cvo_domestic_transportation_info_from_trade
+cvo_border_clearance_info+cvo_border_status_from_other_cvas};

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. .

Additional Sizing Assumptions:
SIZE=2;

broadcast_data

This data flow is used within the Provide Driver and Traveler Services function to provide traffic and travel advisory data via a wide area broadcast message to drivers and travelers 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.

Additional Sizing Assumptions:
None

broadcast_parameters_data

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

Additional Sizing Assumptions:
SIZE=256;

call_back_information

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

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:

SIZE=16;

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. .

Additional Sizing Assumptions:
SIZE=1;

cargo_safety_status

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

Additional Sizing Assumptions:
SIZE=16;

carrier_identity

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

Additional Sizing Assumptions:
SIZE=40;

center_control_of_on_board_work_zone_devices

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

Additional Sizing Assumptions:
SIZE = 8;

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.

Additional Sizing Assumptions:
None

cf_driver_instructions_request

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

cv_driver_number
+ cv_route_number.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=256;

cf_driver_route

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

cv_route_number
+ cv_route_data.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cf_driver_route_instructions_output

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

cv_driver_number
+ cf_driver_load_details
+ cv_route_number
+ cv_route_data.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cf_enrollment_information

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

cv_route_number
+ cv_taxes_and_duties
+ cv_route_data
+ route_type
+ cv_border_enrollments
+ cv_special_vehicle_enrollments.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=16;

cf_hazmat_route_information

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

cv_route_number
+ cv_route_data.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cf_incident_alert

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

assignment_mismatch_warning

+ cv_route_monitoring_status
+ cvo_security_alarm.

Additional Sizing Assumptions:
None

cf_incident_response

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

Additional Sizing Assumptions:
SIZE=4;

cf_manager_activity_report

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

cf_retained_activity_report_data.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=cv_credentials_details+cv_roadside_activity_report_frequency+list_size
+CVO_FAC{cv_roadside_facility_identity};

cf_manager_credit_identity

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

credit_identity.

Additional Sizing Assumptions:
None

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

cv_amount_billed.

Additional Sizing Assumptions:
None

cf_manager_enrollment_information

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

cv_route_number
+ cv_taxes_and_duties.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cf_manager_enrollment_payment_request

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

cf_manager_credit_identity
+ cv_route_number.

Additional Sizing Assumptions:
None

cf_manager_enrollment_request

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

cv_cargo_class
+ cv_route_number
+ cv_trip_identity
+ cv_vehicle_class
+ cv_weight_class.

Additional Sizing Assumptions:

None

cf_manager_freight_route_information

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

cv_route_data
+ cv_route_number
+ cv_trip_identity
+ freight_cargo_data
+ freight_equipment_number.

Additional Sizing Assumptions:
None

cf_manager_instructions

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

cf_request_vehicle_data
+ cf_manager_route_monitoring_parameters.

Additional Sizing Assumptions:
None

cf_manager_route_data

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

cv_route_data
+ route_type
+ cv_route_number.

Additional Sizing Assumptions:
None

cf_manager_route_monitoring_parameters

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

route_monitoring_parameters.

Additional Sizing Assumptions:
None

cf_manager_route_request

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

origin
+ destination
+ departure_time
+ desired_arrival_time
+ modes
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ preferred_weather_conditions
+ constraint_on_acceptable_travel_time
+ constraint_on_load_classification
+ constraint_on_ahs_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type
+ route_type.

Additional Sizing Assumptions:
None

cf_manager_route_status

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

vehicle_identity
+ vehicle_location_for_cv.

Additional Sizing Assumptions:
None

cf_manager_storage_request

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

cv_storage_action_flag
+ cv_route_number.

Additional Sizing Assumptions:
None

cf_manager_vehicle_monitoring_parameters

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

route_monitoring_parameters.

Additional Sizing Assumptions:
None

cf_mgr_booking_request

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

freight_booking_information.

Additional Sizing Assumptions:
None

cf_mgr_booking_response

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

Additional Sizing Assumptions:
SIZE=64;

cf_on_board_vehicle_data

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

cv_on_board_data
+ cv_general_output_message.

Additional Sizing Assumptions:
None

cf_periodic_activity_report

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

list_size
+ list_size{cv_roadside_facility_identity
    + cv_roadside_periodic_activity_data}.

Additional Sizing Assumptions:
SIZE=list_size+CVO_FAC{cv_roadside_facility_identity+cv_roadside_periodic_activity_data};

cf_request_vehicle_data

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

Additional Sizing Assumptions:
SIZE=2;

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}.

Additional Sizing Assumptions:
SIZE=list_size+CVO_FAC{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.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+CVO_VEHS{cf_tag_initialization_data};

cf_retrieved_vehicle_data

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

cv_on_board_data
+ cv_general_input_message.

Additional Sizing Assumptions:
None

cf_roadside_activity_report

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

list_size
+ list_size{cv_roadside_facility_identity
    + cv_roadside_single_activity_data}.

Additional Sizing Assumptions:
SIZE=list_size+CVO_FAC{cv_roadside_facility_identity+cv_roadside_single_activity_data};

cf_route

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

cv_route_data
+ cv_route_number.

Additional Sizing Assumptions:
None

cf_route_details

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

cv_route_number
+ cv_taxes_and_duties
+ cv_route_data
+ route_type.

Additional Sizing Assumptions:
None

cf_route_request

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

constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_load_classification
+ constraint_on_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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=256;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cf_tag_data_store_output

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

cv_credentials_details
+ cv_trip_identity.

Additional Sizing Assumptions:
None

cf_tag_data_store_request

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

Additional Sizing Assumptions:
SIZE=1;

cf_tag_data_store_write

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

cv_credentials_details
+ cv_trip_identity
+ tag_identity.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cf_tax_data

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

Additional Sizing Assumptions:
SIZE = 2048;

cf_vehicle_data

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

cv_on_board_data
+ cv_general_input_message
+ cv_driver_alert_response.

Additional Sizing Assumptions:
None

charge_payment_violator_data

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

credit_identity
+ vehicle_identity
+ parking_lot_cost.

Additional Sizing Assumptions:
None

climatic_scale_surface_trans_weather_forecasts

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

Additional Sizing Assumptions:
SIZE=64;

climatic_scale_weather_forecasts

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

Additional Sizing Assumptions:
SIZE=128;

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. .

Additional Sizing Assumptions:
SIZE = 128;

closure_event_data

This data flow contains data to be used by traffic management to coordinate its overall operations with the HRI closures. .
Additional Sizing Assumptions:
SIZE = 128;

collected_incident_data

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

incident_and_event_data
+ incident_cvo_data
+ incident_surveillance_data
+ incident_sensor_data
+ threat_detected.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

collection_administration_status

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

Additional Sizing Assumptions:
SIZE=255;

collection_conditions

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

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

confirm_advanced_charges_payment

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

confirmation_flag
+ credit_identity
+ parking_lot_cost

+ stored_credit
+ traveler_identity.

Additional Sizing Assumptions:
None

confirm_advanced_fares_payment

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

confirmation_flag
+ credit_identity
+ stored_credit
+ transit_fare
+ traveler_identity.

Additional Sizing Assumptions:
None

confirm_advanced_tolls_payment

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

confirmation_flag
+ credit_identity
+ stored_credit
+ toll_cost
+ traveler_identity.

Additional Sizing Assumptions:
None

confirm_roadside_fare_payment

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

confirmation_flag
+ transit_roadside_fare_collection_identity.

Additional Sizing Assumptions:
None

confirm_vehicle_fare_payment

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

confirmation_flag
+ traveler_vehicle_tag_identity
+ transit_vehicle_identity.

Additional Sizing Assumptions:
None

confirmation_flag

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

Additional Sizing Assumptions:
SIZE=1;

constraint_on_acceptable_travel_time

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

Additional Sizing Assumptions:
SIZE=2;

constraint_on_ahs_lanes

This data flow is used within the Provide Driver and Traveler Services function and contains a flag which if set means that where possible use route segments that are automatic highway system (AHS) lanes. .

Additional Sizing Assumptions:
SIZE=1;

constraint_on_eta_change

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

Additional Sizing Assumptions:
SIZE=2;

constraint_on_interstate

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

Additional Sizing Assumptions:
SIZE=1;

constraint_on_load_classification

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

Additional Sizing Assumptions:
SIZE=3;

constraint_on_number_of_mode_changes

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

Additional Sizing Assumptions:
SIZE=1;

constraint_on_number_of_transfers

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

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=3;

constraint_on_urban

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

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=18;

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 traveler or driver (or provided by a process as a default value) before the route selection process can proceed. The data flow consists of the following items each of which is defined in its own DDE:

constraint_on_acceptable_travel_time
+ constraint_on_number_of_mode_changes
+ constraint_on_number_of_transfers
+ constraint_on_eta_change
+ constraint_on_special_needs

+ constraint_on_load_classification
+ constraint_on_ahs_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type.

Additional Sizing Assumptions:
None

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
+ indicator_highway_requested_state
+ dms_data.

Additional Sizing Assumptions:
None

control_data_for_roads

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

indicator_control_data_for_roads.

Additional Sizing Assumptions:
None

control_data_from_manage_incidents

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

freeway_control_request_for_detours
+ roadway_control_request_for_detours.

Additional Sizing Assumptions:
None

control_data_to_manage_incidents

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

freeway_control_response_for_detours
+ roadway_control_response_for_detours.

Additional Sizing Assumptions:
None

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
+ environmental_data_for_signage
+ parking_lot_input_data
+ parking_lot_dynamic_information_request_by_traffic
+ 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
+ other_roadway_information_data
+ roadway_information_status
+ barrier_system_activation_request_from_operator
+ roadway_info_operator_input
+ vehicle_signage_operator_input.

Additional Sizing Assumptions:
None

control_status

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

Additional Sizing Assumptions:
SIZE=2;

coordination_data_freeways_to_roads

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

coordination_rule_highway_data_number
+ coordination_rule_highway_data_description
+ coordination_rule_data_for_highways.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_LINKS{link_identity+link_journey_time+link_queue_time};

coordination_rule_data_for_highways

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

highway_sign_plan_number
+ indicator_road_adaptive_plan_number
+ indicator_road_fixed_plan_number.

Additional Sizing Assumptions:
SIZE=highway_sign_plan_number+2{indicator_road_adaptive_plan_number
+indicator_road_fixed_plan_number};

coordination_rule_data_for_roads

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

indicator_road_adaptive_plan_number
+ indicator_road_fixed_plan_number
+ highway_sign_plan_number.

Additional Sizing Assumptions:
SIZE=indicator_road_adaptive_plan_number+indicator_road_fixed_plan_number
+4{highway_sign_plan_number};

coordination_rule_highway_data_description

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

Additional Sizing Assumptions:
SIZE=20;

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. .

Additional Sizing Assumptions:
SIZE=3;

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. .

Additional Sizing Assumptions:
SIZE=20;

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. .

Additional Sizing Assumptions:
SIZE=3;

coordination_rules_for_highways

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

list_size
+ list_size{coordination_rule_data_for_highways
+ coordination_rule_highway_data_number

+ coordination_rule_highway_data_description}.

Additional Sizing Assumptions:
SIZE=list_size+TRAFFIC_COORDINATION_RULES{coordination_rule_data_for_highways
+coordination_rule_highway_data_number+coordination_rule_highway_data_description};

coordination_rules_for_roads

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

list_size
+ list_size{coordination_rule_data_for_roads
+ coordination_rule_road_data_number
+ coordination_rule_road_data_description}.

Additional Sizing Assumptions:
SIZE=list_size+TRAFFIC_COORDINATION_RULES{coordination_rule_data_for_roads
+coordination_rule_road_data_number+coordination_rule_road_data_description};

cost

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

Additional Sizing Assumptions:
SIZE=2;

credit_identity

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

Additional Sizing Assumptions:
SIZE=20;

crossing_adaptive_data

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

Additional Sizing Assumptions:
SIZE=30;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

crossing_closure_schedule

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

Additional Sizing Assumptions:
SIZE=80;

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. .

Additional Sizing Assumptions:
SIZE=20;

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. .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
SIZE=crossing_list+HIGHWAY_CROSSINGS{crossing_close_time+crossing_close_duration};

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.

Additional Sizing Assumptions:
SIZE=crossing_list+ROAD_CROSSINGS{crossing_close_time+crossing_close_duration};

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}.

Additional Sizing Assumptions:
SIZE=list_size+HIGHWAY_CROSSING_CONTROLLERS{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}.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_CROSSING_CONTROLLERS{crossing_identity+crossing_phase_data};

crossing_fixed_time_data

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

crossing_cycle_time
+ crossing_offset_time
+ crossing_control_commands.

Additional Sizing Assumptions:
None

crossing_id

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

Additional Sizing Assumptions:
SIZE=6;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
SIZE=list_size+CROSSINGS{crossing_identity};

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=5;

current_asset_restrictions

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

Additional Sizing Assumptions:
SIZE=32;

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). .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
None

current_conditions

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

incident_location
+ incident_start_time
+ incident_duration
+ incident_type
+ fws-current_weather_observations
+ fws-weather_forecasts
+ road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

current_data_for_dissemination

This data flow contains a subset of the current data available from the Manage Traffic and Manage Maintenance and Construction functions which is appropriate for transmission to travelers. 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
+ area_air_quality_index
+ current_roadway_maintenance_status
+ road_conditions
+ road_weather_conditions
+ work_zone_data_for_status
+ hri_sensor_data.

Additional Sizing Assumptions:
None

current_data_for_retrieval

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

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

Additional Sizing Assumptions:
None

current_fare_transactions

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

credit_identity
+ date
+ time
+ transit_fare
+ traveler_identity.

Additional Sizing Assumptions:
None

current_fleet_maintenance_status

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

Additional Sizing Assumptions:
SIZE=1024;

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}.

Additional Sizing Assumptions:
SIZE=link_list_for_highways+HIGHWAY_LINKS{link_journey_time+link_delay};

current_highway_network_state

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

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

Additional Sizing Assumptions:
SIZE=list_size+LINKS{link_identity+link_journey_time+link_delay+link_level_of_service};

current_hri_state

This data flow is used by the Detect Roadway Events process to report the overall state of all sensors and indicators within the HRI domain. The flow is used by the Provide Advance Warnings process to provide equipment status, and to predict the near term conditions at the HRI. .
Additional Sizing Assumptions:
SIZE = 128;

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). .

Additional Sizing Assumptions:
SIZE=2;

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
+ list_size{current_incident_details}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_CUR_INCIDENTS{current_incident_details};

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

current_incidents_data

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

current_incident_details.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

current_incidents_data_update

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

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

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

current_incidents_request

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

incident_type
+ incident_request_criteria.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_CUR_INCIDENTS{current_incident_details};

current_nitrogen_oxides_pollution

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

Additional Sizing Assumptions:
SIZE=2;

current_other_routes_use

This data flow is used within the Provide Driver and Traveler Services function and contains data about the non-vehicle portion(s) of routes that have been requested by travelers. These route portions will involve the use of modes such as cycling, walking, etc. The data will be stored in ascending route segment number order (i.e. from 1 to the maximum number of route segments), and consists of the following data items each of which is defined in its own DDE:

route_segment_total_number
+ route_segment_total_number{route_segment_identity
+ time_period{route_segment_guided_travelers}
+ route_segment_journey_time}.

Additional Sizing Assumptions:
SIZE=route_segment_total_number+OTHER_SEGS{TIME_PERIOD{route_segment_guided_travelers}
+route_segment_journey_time+route_segment_identity};

current_other_routes_use_for_archive

This data flow is used within the Provide Driver and Traveler Services function and contains data for the data archive about the non-vehicle portion(s) of routes that have been requested by travelers. These route portions will involve the use of modes such as cycling, walking, etc. The data will be stored in ascending route segment number order (i.e. from 1 to the maximum number of route segments), and consists of the following data items each of which is defined in its own DDE:

route_segment_total_number
+ route_segment_total_number{route_segment_identity
+ time_period{route_segment_guided_travelers}
+ route_segment_journey_time}.

Additional Sizing Assumptions:
SIZE=route_segment_total_number+OTHER_SEGS{TIME_PERIOD{route_segment_guided_travelers}
+route_segment_journey_time+route_segment_identity};

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). .

Additional Sizing Assumptions:
SIZE=2;

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). .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
None

current_ramp_state

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

Additional Sizing Assumptions:
SIZE=1;

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}.

Additional Sizing Assumptions:
SIZE=link_list+ROAD_LINKS{link_journey_time+link_delay};

current_road_network_state

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

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

Additional Sizing Assumptions:
SIZE=list_size+LINKS{link_identity+link_journey_time+link_delay};

current_road_network_use

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Traffic and Manage Maintenance and Construction functions. It contains information about how many vehicles are being guided down each route segment and the average journey time for each route segment provided by guided vehicles. The data 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}.

Additional Sizing Assumptions:
SIZE=route_segment_total_number+ROADWAY_SEGS{route_segment_use_prediction

+route_segment_journey_time+route_segment_identity};

current_road_network_use_for_archive

This data flow is used within the Provide Driver and Traveler Services function and contains information about how many vehicles are being guided down each route segment and the average journey time for each route segment provided by guided vehicles. The data 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}.

Additional Sizing Assumptions:
SIZE=route_segment_total_number+ROADWAY_SEGS{route_segment_use_prediction
+route_segment_journey_time+route_segment_identity};

current_roadside_pollution_location

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

location_identity.

Additional Sizing Assumptions:
None

current_roadway_maintenance_status

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

Additional Sizing Assumptions:
SIZE=128;

current_roadway_network_data

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

current_highway_network_data
+ current_road_network_data.

Additional Sizing Assumptions:
None

current_roadway_network_state

This data flow is sent by the Manage Traffic function to the Provide Driver and Traveler Services function and contains data about traffic conditions on links in the road (surface street) and highway network served by the

function. The data is used by the route selection and guidance processes in determining the best vehicle routes. It consists of the following data items each of which is defined in its own DDE:

current_highway_network_state
+ current_road_network_state.

Additional Sizing Assumptions:
None

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). .

Additional Sizing Assumptions:
SIZE=2;

current_toll_transactions

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

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

Additional Sizing Assumptions:
None

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
+ list_size{pollution_state_roadside_collection}.

Additional Sizing Assumptions:
SIZE=pollution_state_area_collection+list_size
+POLLUTION_POINTS{pollution_state_roadside_collection};

current_transit_routes_use

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

list_size
+ list_size{transit_route_number
    + transit_route_current_use}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_TRANSIT_ROUTES{transit_route_number+transit_route_current_use};

current_weather_observations

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

Additional Sizing Assumptions:
SIZE=128;

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. .

Additional Sizing Assumptions:
SIZE=16;

cv_admin_data_for_roadside

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

cvo_border_agency_clearance_results
+ cv_border_database_update
+ cv_credentials_database_update
+ cv_credentials_information_response
+ cv_safety_database_update
+ cv_safety_information_response
+ cvo_transportation_border_clearance.

Additional Sizing Assumptions:
None

cv_amount_billed

This data flow is used within the Manage Commercial Vehicles function to show the amount billed to a particular account for the enrollment of a commercial vehicle cargo, weight and type on a particular route. Set to zero may mean the payment request failed. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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_data_for_archive.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cv_assignment_data

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

cv_vehicle_number
+ cv_route_number.

Additional Sizing Assumptions:
None

cv_assignment_info

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

cv_driver_number
+ cv_driver_identity_characteristic_key
+ cv_route_number
+ cv_vehicle_number.

Additional Sizing Assumptions:
None

cv_border_data

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

cv_trip_identity
+ cv_lock_tag_data
+ cv_vehicle_characteristics
+ cv_on_board_border_data.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=128;

cv_border_override

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

cv_credentials_details
+ cv_border_override_code
+ time.

Additional Sizing Assumptions:
None

cv_border_override_code

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

cv_operator_override.

Additional Sizing Assumptions:
None

cv_border_problem

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

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+1{NUM_CVO_RECORDS/100}{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. .

Additional Sizing Assumptions:
SIZE=3;

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. .

Additional Sizing Assumptions:
SIZE=3;

cv_cargo_information

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

cargo_data
+ cargo_safety_status.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=3;

cv_cargo_status

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

Additional Sizing Assumptions:
SIZE=1;

cv_carrier_number

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

Additional Sizing Assumptions:
SIZE=16;

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.

Additional Sizing Assumptions:
None

cv_check_credentials_response

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

cv_credentials_details
+ cv_credentials_status_code.

Additional Sizing Assumptions:
None

cv_commit_local_enrollment

This data flow is used within the Manage Commercial Vehicles function. It contains a request from a remote commercial vehicle administration function to update the credentials for a particular commercial vehicle at the

roadside checkstation facilities (enroll the vehicle) that are served by the local function. The data flow consists of the following data items each of which is defined in its own DDE:

cv_route_details
+ cv_credentials_details
+ cv_trip_classification_data
+ cv_trip_identity.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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_payment_confirmed.

Additional Sizing Assumptions:
None

cv_credentials

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

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cv_credentials_information

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

information_datapage.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=1;

cv_critical_problem

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

cv_critical_safety_problem
+ cv_critical_security_problem.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=128;

cv_critical_security_problem

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

Additional Sizing Assumptions:
SIZE=128;

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. .

Additional Sizing Assumptions:
SIZE=6;

cv_daily_logs

This data flow is used within the Manage Commercial Vehicles function. It contains a copy of the daily log of all the activities that have taken place at a commercial vehicle roadside checkstation facility and a border crossing

facility. This data is analyzed to determine problem vehicles, drivers and carriers for future pull-in requests and reports to the government administrators. The data flow consists of the following data items each of which is defined in its own DDE:

cv_roadside_daily_log
+ cvo_border_clearance.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cv_database

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

list_size
+ list_size{cv_credentials_details
    + cv_trip_classification_data
    + cv_credentials_status_code
    + cvo_transportation_border_results
    + cvo_border_results
    + cv_trip_identity}.

Additional Sizing Assumptions:
SIZE=list_size+CVO_VEHS{cv_credentials_details+cv_trip_classification_data
+cv_credentials_status_code+cvo_transportation_border_results
+cvo_border_results+cv_trip_identity};

cv_disable

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

Additional Sizing Assumptions:
SIZE=1;

cv_driver_alert_response

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

Additional Sizing Assumptions:

SIZE=4;

cv_driver_assignment

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

cv_driver_identity_characteristic_key
+ cv_driver_number
+ cv_route_number.

Additional Sizing Assumptions:
None

cv_driver_authentication_status

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

Additional Sizing Assumptions:
SIZE=4;

cv_driver_credentials

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

Additional Sizing Assumptions:
SIZE=24;

cv_driver_credit_identity

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

credit_identity
+ stored_credit.

Additional Sizing Assumptions:
None

cv_driver_data_input

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

cv_fuel_purchase_data
+ cv_driver_number
+ cv_driver_credentials
+ cv_driver_license_citations
+ cv_repairs_and_service_records
+ cvo_cargo_data_from_driver

+ driver_identity.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1024000;

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.

Additional Sizing Assumptions:
None

cv_driver_enrollment_cost

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

cv_amount_billed
+ stored_credit.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cv_driver_identity_characteristic_key

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

Additional Sizing Assumptions:
SIZE = 8;

cv_driver_identity_characteristics

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

Additional Sizing Assumptions:
SIZE=8;

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. .

Additional Sizing Assumptions:
SIZE=32;

cv_driver_number

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

Additional Sizing Assumptions:
SIZE=16;

cv_driver_output_message

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

cv_general_output_message
+ cv_driver_alert_response.

Additional Sizing Assumptions:
None

cv_driver_response

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

cv_driver_alert_response.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cv_electronic_clearance_data

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

cv_lock_tag_data.

Additional Sizing Assumptions:
None

cv_electronic_screening_data

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

cv_credentials_details
+ cv_on_board_screening_data.

Additional Sizing Assumptions:
None

cv_emergency_data

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

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

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cv_facility_log

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

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

Additional Sizing Assumptions:
SIZE=list_size+CVO_FAC{100}{cv_roadside_daily_log}+2{100}{cvo_border_clearance};

cv_freight_breach

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

freight_breach.

Additional Sizing Assumptions:
None

cv_freight_integrity

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

freight_integrity.

Additional Sizing Assumptions:
None

cv_freight_location

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

freight_equipment_location.

Additional Sizing Assumptions:
None

cv_freight_maintenance

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

freight_maintenance.

Additional Sizing Assumptions:

None

cv_freight_operations

This data flow contains information regarding the availability of freight equipment attached to a commercial vehicle. It provides information regarding load status (i.e. trailer empty), chassis status (i.e. chassis bare) and other indicators that determine the availability of freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

freight_operations.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cv_fuel_purchase_data

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

cv_fuel_purchase_cost
+ cv_fuel_purchase_quantity.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

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 fleet manager. The data is used to convey general information and may be used instead of a voice link. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=64;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cv_general_pull-in

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

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=1;

cv_hazmat_alarm

This data flow contains information about a commercial vehicle that has been detected at the roadside to have non-permitted security sensitive hazmat characteristics.

cv_screening_data.

Additional Sizing Assumptions:
None

cv_identities

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

driver_identity
+ freight_equipment_id
+ vehicle_identity.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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
+ permit_traffic_controls.

Additional Sizing Assumptions:
None

cv_inspection_activities_data

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

Additional Sizing Assumptions:
SIZE=32;

cv_inspection_data

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

Additional Sizing Assumptions:
SIZE=256;

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. .

Additional Sizing Assumptions:
SIZE=1024;

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. .

Additional Sizing Assumptions:
SIZE=800;

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.

Additional Sizing Assumptions:
None

cv_inspector_safety_data_input

This data flow is used within the Manage Commercial Vehicles function and contains data that is input by an inspector using a hand held terminal. This data will be associated with the roadside inspection of a commercial

vehicle and may include extra comments on things not found by the inspection process, or recommendations for remedial action, where problems have been found. .

Additional Sizing Assumptions:
SIZE=64;

cv_local_route_restrictions

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

hazmat_route_restrictions
+ current_asset_restrictions.

Additional Sizing Assumptions:
None

cv_location

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

vehicle_identity
+ vehicle_location_for_cv.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cv_log_entry_location

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

vehicle_location_for_cv.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=3;

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.

Additional Sizing Assumptions:
None

cv_manual_pull-in

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

Additional Sizing Assumptions:
SIZE=1;

cv_not_pulled_in

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

Additional Sizing Assumptions:
SIZE=1;

cv_on_board_border_data

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

list_size
+ list_size{cv_on_board_border_details
    + cv_credentials_details}.

Additional Sizing Assumptions:
SIZE=list_size+CVO_BDR_PER_ROUTE{cv_on_board_border_details+cv_credentials_details};

cv_on_board_border_details

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

cv_roadside_facility_identity
+ cv_border_pull_in_output
+ cv_vehicle_weight
+ time.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cv_on_board_data

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

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

+ freight_equipment_id
+ vehicle_location_for_cv.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

cv_on_board_data_output

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

cv_on_board_data.

Additional Sizing Assumptions:
None

cv_on_board_data_required

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

Additional Sizing Assumptions:
SIZE=1;

cv_on_board_data_update

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

cv_credentials_details
+ cv_driver_credentials

+ cv_driver_license_citations
+ cv_fuel_purchase_data
+ cv_inspection_data
+ cv_inspection_activities_data
+ cv_log_data
+ cv_repairs_and_service_records
+ cv_safety_systems_diagnostics_results
+ cv_vehicle_log
+ freight_equipment_id
+ vehicle_identity
+ vehicle_location_for_cv.

Additional Sizing Assumptions:
None

cv_on_board_driver_data

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

driver_identity.

Additional Sizing Assumptions:
None

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].

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+CVO_FAC_PER_ROUTE{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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cv_on_board_stored_data

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

cv_on_board_data.

Additional Sizing Assumptions:
None

cv_on_board_stored_sensor_data

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

cvo_on_board_sensor_data.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cv_operator_override

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

Additional Sizing Assumptions:
SIZE=1;

cv_out_of_service_status

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

Additional Sizing Assumptions:
SIZE=1;

cv_output_on_board_vehicle_data

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

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1024;

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.

Additional Sizing Assumptions:
None

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). .

Additional Sizing Assumptions:
SIZE=1;

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). .

Additional Sizing Assumptions:
SIZE=1;

cv_remote_route_restrictions

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

hazmat_route_restrictions
+ current_asset_restrictions.

Additional Sizing Assumptions:
None

cv_repairs_and_service_records

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

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=1;

cv_request_electronic_screening_data

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

Additional Sizing Assumptions:
SIZE=4;

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). .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

cv_request_on_board_vehicle_data

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

cv_on_board_data_required.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=2;

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}.

Additional Sizing Assumptions:
SIZE=list_size+100{10}{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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

cv_roadside_border_database

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

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

Additional Sizing Assumptions:
SIZE=list-size+NUM_CVO_RECORDS{cv_credentials_details+cvo_border_agency_clearance_results
+cvo_transportation_border_clearance+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.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list-size+NUM_CVO_RECORDS{cv_credentials_details+cv_credentials_status_code
+cv_trip_classification_data};

cv_roadside_daily_log

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

cv_roadside_facility_identity
+ cv_roadside_record
+ date.

Additional Sizing Assumptions:
None

cv_roadside_data_for_admin

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

cv_roadside_daily_log
+ cvo_border_clearance
+ cvo_citation_data.

Additional Sizing Assumptions:
None

cv_roadside_data_for_vehicle

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

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

Additional Sizing Assumptions:
None

cv_roadside_facility_address

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

Additional Sizing Assumptions:
SIZE=16;

cv_roadside_facility_identity

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

Additional Sizing Assumptions:
SIZE=16;

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.

Additional Sizing Assumptions:
None

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
    + route_segment_identity
    + location_identity}.

Additional Sizing Assumptions:
SIZE=list_size+CVO_FAC{cv_roadside_facility_identity+route_segment_identity
    +location_identity};

cv_roadside_facility_log

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

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

Additional Sizing Assumptions:
SIZE=list_size+CVC_SAMPLE_RATE{date++cv_archived_safety_data
  +cv_archived_inspection_data+cv_screening_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. .

Additional Sizing Assumptions:
SIZE=1;

cv_roadside_operator_output

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

cv_roadside_facility_log.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+10{10}{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}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_CVO_RECORDS{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. .

Additional Sizing Assumptions:
SIZE=64;

cv_roadside_safety_data

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

cv_driver_details
+ cv_safety_status_code
+ cv_vehicle_details.

Additional Sizing Assumptions:

None

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}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_CVO_RECORDS{cv_roadside_safety_data};

cv_roadside_safety_database_update

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

cv_roadside_safety_data.

Additional Sizing Assumptions:
None

cv_roadside_single_activity_data

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

list_size
+ list_size{cv_roadside_activity_details}.

Additional Sizing Assumptions:
SIZE=list_size+100{10}{cv_roadside_activity_details};

cv_route

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

cv_route_data
+ vehicle_identity.

Additional Sizing Assumptions:
None

cv_route_data

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

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

Additional Sizing Assumptions:
SIZE=route_cost+route_list+route_start_time+route_statistics
+NUM_SEGS{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.

Additional Sizing Assumptions:
None

cv_route_input

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

cf_route_request
+ cv_route_request.

Additional Sizing Assumptions:
None

cv_route_monitoring_status

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

cv_route_data
+ route_monitoring_parameters
+ vehicle_identity
+ vehicle_location_for_cv
+ time
+ date.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:

SIZE=1;

cv_route_outputs

This data flow is sent from the Provide Driver and Traveler 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.

Additional Sizing Assumptions:
None

cv_route_request

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

constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_load_classification
+ constraint_on_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.

Additional Sizing Assumptions:
None

cv_route_restrictions

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

hazmat_route_restrictions
+ current_asset_restrictions.

Additional Sizing Assumptions:
None

cv_route_warning

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

cv_route_monitoring_status.

Additional Sizing Assumptions:
None

cv_route_warning_for_driver

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

cv_route_monitoring_status.

Additional Sizing Assumptions:
None

cv_safety_data

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

cv_electronic_screening_data
+ cvo_safety_inspection
+ cv_vehicle_characteristics.

Additional Sizing Assumptions:
None

cv_safety_data_request

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

cv_credentials_details
+ cv_safety_information_request_type.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+CVO_VEHS{cv_credentials_details+cv_roadside_facility_identity
    +cv_roadside_safety_data};

cv_safety_information

This data flow is used within the Manage Commercial Vehicles function and contains some commercial vehicle safety data which has been previously requested by the commercial vehicle roadside checkstation inspector. This

data will be used by the inspector for checking vehicles as they pass. The data flow consists of the following item of data which is defined in its own DDE:

information_datapage.

Additional Sizing Assumptions:
None

cv_safety_information_request_type

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

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cv_safety_override_code

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

cv_operator_override.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

cv_safety_systems_diagnostics_results

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

Additional Sizing Assumptions:
SIZE=16;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cv_screening_override_code

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

cv_operator_override.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cv_security

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

cv_security_alarm
+ freight_breach_for_rs.

Additional Sizing Assumptions:
None

cv_security_alarm

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

cv_critical_security_problem
+ cv_identity_details.

Additional Sizing Assumptions:
None

cv_security_systems_diagnostics_results

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

Additional Sizing Assumptions:
SIZE=16;

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. .

Additional Sizing Assumptions:
SIZE=128;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=256;

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.

Additional Sizing Assumptions:
None

cv_storage_action_flag

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

Additional Sizing Assumptions:
SIZE=1;

cv_tag_data

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

cv_carrier_number
+ cv_driver_number
+ cv_vehicle_number.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

cv_tag_data_store_needed

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

Additional Sizing Assumptions:
SIZE=1;

cv_tag_data_store_output

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

cv_credentials_details
+ cv_trip_identity.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

cv_tag_data_store_write

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

cv_credentials_details
+ cv_trip_identity
+ tag_identity.

Additional Sizing Assumptions:
None

cv_tax_and_credential_fees

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

Additional Sizing Assumptions:
SIZE=4096;

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. .

Additional Sizing Assumptions:
SIZE=7;

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.

Additional Sizing Assumptions:
None

cv_trip_identity

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

Additional Sizing Assumptions:
SIZE=4;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=15;

cv_vehicle_characteristics

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

cv_vehicle_weight
+ cv_vehicle_size
+ cv_vehicle_configuration
+ cv_vehicle_hazmat_characteristics.

Additional Sizing Assumptions:
None

cv_vehicle_class

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

Additional Sizing Assumptions:
SIZE=3;

cv_vehicle_configuration

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

Additional Sizing Assumptions:
SIZE=3;

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.

Additional Sizing Assumptions:
None

cv_vehicle_data_for_roadside

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

cv_electronic_clearance_data
+ cv_electronic_screening_data
+ cvo_border_clearance_data
+ cvo_safety_inspection
+ cvo_tag_data.

Additional Sizing Assumptions:
None

cv_vehicle_details

This data flow is used within the Manage Commercial Vehicles function. It contains details about the activities involving a particular commercial vehicle over a period of time. The vehicle identity for this data is held in an associated data flow. The data flow itself consists of the following data items each of which is defined in its own DDE:

cv_credentials
+ 1{cv_fuel_purchase_data
    + cv_inspection_activities_data
    + cv_log_data
    + cv_repairs_and_service_records

+ cv_safety_systems_diagnostics_results
+ cv_vehicle_log}list_size.

Additional Sizing Assumptions:
SIZE=cv_credentials+100{cv_repairs_and_service_records+cv_fuel_purchase_data
+cv_safety_systems_diagnostics_results+cv_vehicle_log+cv_log_data};

cv_vehicle_hazmat_characteristics

This data flow contains the commercial vehicle hazmat characteristics as detected by roadside sensors, such as a nuclear particle sensors or chemical sensors. .

Additional Sizing Assumptions:
SIZE=1;

cv_vehicle_log

This data flow is used within the Manage Commercial Vehicles function. It contains a log of the commercial vehicle's cargo loading and unloading activities. Data about other activities is stored in separate data flows, as is the date, time, place, driver identity and vehicle mileage when the activity took place. This data flow consists of the following data items each of which is defined in its own DDE:

cv_cargo_loaded
+ cv_cargo_discharged.

Additional Sizing Assumptions:
None

cv_vehicle_number

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

Additional Sizing Assumptions:
SIZE=16;

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=1;

cv_violation_data

This data flow is sent from the Manage Commercial Vehicles function to the Manage Emergency Services function. It contains details of commercial vehicles that have committed violations at roadside checking facilities. These may be caused by failure to stop, or by failure to provide on-board data, the on-board data itself being in error, or failure of a roadside check. This data flow is made up of the following items each of which is defined in its own DDE:

cvo_citation_data
+ cvo_violation.

Additional Sizing Assumptions:
None

cv_weight_class

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

Additional Sizing Assumptions:
SIZE=3;

cvo_accident

This data flow is used within the Manage Commercial Vehicles function and contains information about a commercial vehicle safety accident. This data flow consists of the following data items each of which is defined in its own DDE:

cvo_accident_data.

Additional Sizing Assumptions:
None

cvo_accident_data

This data flow is used within the Manage Commercial Vehicles function and contains information about a commercial vehicle accident. .

Additional Sizing Assumptions:
SIZE=32;

cvo_accident_data_for_fleet

This data flow is used within the Manage Commercial Vehicle function. It contains a report for the fleet manager with information about a commercial vehicle safety accident. This data flow consists of the following data item which is defined in its own DDE:

cvo_accident_data.

Additional Sizing Assumptions:
None

cvo_advanced_payments_request

This data flow is sent from the Manage Commercial Fleet Electronic Credentials function to the Provide Electronic Payment Services to request that a toll be paid for in advance by a commercial vehicle fleet operator. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ toll_route_segments
+ vehicle_identity.

Additional Sizing Assumptions:
None

cvo_advanced_toll_confirmation

This data flow contains data about an advanced toll transaction requested by a commercial vehicle fleet operator and consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ stored_credit
+ toll_cost
+ traveler_identity.

Additional Sizing Assumptions:
None

cvo_advanced_toll_payment_information

This data flow is sent from the Provide Electronic Payment Services function to the Manage Commercial Fleet Electronic Credentials function and contains data about an advanced toll transaction requested by a commercial vehicle fleet operator and consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ stored_credit
+ toll_cost
+ traveler_identity.

Additional Sizing Assumptions:
None

cvo_advanced_toll_request

This data flow is sent from the Advanced Toll Payment function to the Manage Commercial Fleet Electronic Credentials function to request that a toll be paid for in advance by a commercial vehicle fleet operator. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ toll_route_segments
+ vehicle_identity.

Additional Sizing Assumptions:
None

cvo_alarm

This data flow contains the details of security related incidents involving commercial vehicles. These include notifications of significant route deviations and breach or tamper events. The identities of the driver, commercial vehicle and freight equipment which don't match the planned assignment will be flagged. The data flow consists of the following data items each of which is defined in its own DDE:

cv_vehicle_number
+ cv_driver_number
+ cv_identity_details
+ freight_cargo_data
+ freight_equipment_number
+ incident_type
+ vehicle_location_for_cv
+ time
+ date.

Additional Sizing Assumptions:
None

cvo_audit_data

This data flow is used within the Manage Commercial Vehicle function. It contains information to support a tax audit. .

Additional Sizing Assumptions:
SIZE=1024;

cvo_border_agency_clearance_results

This data flow is used within the Manage Commercial Vehicle function. It contains notification information regarding the granting of permission for commercial freight shipment to enter the United States. It consists of the following data items each of which is defined in its own DDE:

cvo_border_results.

Additional Sizing Assumptions:
None

cvo_border_clearance

This data flow is used within the Manage Commercial Vehicles function. It contains a copy of the daily log of activities that have taken place at a commercial vehicle border crossing facility, including acceptance or override of system decision. The data flow consists of the following data items each of which is defined in its own DDE:

cv_roadside_facility_identity
+ cv_border_record
+ date.

Additional Sizing Assumptions:
None

cvo_border_clearance_data

This data flow is used within the Manage Commercial Vehicle function. It contains trip specific data regarding the movement of goods across international borders. The data flow consists of the following data items each of which is defined in its own DDE:

cv_trip_identity
+ cv_on_board_border_data
+ date.

Additional Sizing Assumptions:
None

cvo_border_clearance_for_fleet

This data flow is used within the Manage Commercial Vehicle function. It contains information about the status of a commercial freight shipment moving across an international border. This data flow consists of the following data items each of which is defined in its own DDE:

cvo_border_clearance_info
+ cvo_border_status_from_other_cvas.

Additional Sizing Assumptions:
None

cvo_border_clearance_info

This data flow is used within the Manage Commercial Vehicle function. It contains trip specific data regarding the movement of goods across international borders, including the trip identification number. The data flow consists of the following data item which is defined in its own DDE:

cvo_border_clearance.

Additional Sizing Assumptions:
None

cvo_border_clearance_request

This data flow is used within the Manage Commercial Vehicle function. It contains a request for trip specific data regarding the movement of goods across international borders (including trip identification numbers). .

Additional Sizing Assumptions:
SIZE=4;

cvo_border_results

This data flow is used within the Manage Commercial Vehicle function. It contains information regarding the granting of permission for commercial freight shipments to enter the U.S. .

Additional Sizing Assumptions:
SIZE=1;

cvo_border_status_for_other_cvas

This data flow is used within the Manage Commercial Vehicle function. It contains information about the status of a commercial freight shipment moving across an international border. This data flow consists of the following data items each of which is defined in its own DDE:

cvo_border_clearance_info.

Additional Sizing Assumptions:
None

cvo_border_status_for_trade

This data flow is used within the Manage Commercial Vehicle function. It contains information regarding the border crossing status of a commercial freight shipment. This data flow consists of the following data items each of which is defined in its own DDE:

cvo_border_clearance_info
+ cvo_border_status_from_other_cvas.

Additional Sizing Assumptions:
None

cvo_border_status_from_other_cvas

This data flow is used within the Manage Commercial Vehicle function. It contains status information from a remote commercial vehicle administration function of a commercial freight shipment moving across an

international border served by the local function. This data flow consists of the following data items each of which is defined in its own DDE:

cvo_border_clearance_info.

Additional Sizing Assumptions:
None

cvo_cargo_data_from_driver

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

cv_cargo_loaded
+ cv_cargo_discharged.

Additional Sizing Assumptions:
None

cvo_citation

This data flow is used within the Manage Commercial Vehicles function and contains information about a citation received by a commercial vehicle and the references to the statute(s) that was (were) violated. It consists of the following data item each of which is defined in its own DDE:

cvo_citation_data.

Additional Sizing Assumptions:
None

cvo_citation_data

This data flow is used within the Manage Commercial Vehicles function and contains information about a citation received by a commercial vehicle and references the statute(s) that was (were) violated. A citation has been adjudicated by the courts. .

Additional Sizing Assumptions:
SIZE=32;

cvo_credential_status

This data flow is used within the Manage Commercial Vehicles function and provides the detailed status for the credentials of a commercial vehicle or commercial vehicle driver, including registration, licensing, insurance, etc... .

Additional Sizing Assumptions:
SIZE=32;

cvo_database_info

This data flow is used within the Manage Commercial Vehicles function and contains a list of carriers, vehicles and driver numbers that have been enrolled, together with flags to identify any for which there are safety and tax payment problems. It contains clearance results for the granting of permission for a commercial freight shipment to proceed at an international border facility. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{cv_credentials_details
+ cv_trip_classification_data
+ cv_credentials_status_code
+ cvo_transportation_border_results
+ cvo_border_results
+ cv_trip_identity}.

Additional Sizing Assumptions:
SIZE=list_size+CVO_VEHS{cv_credentials_details+cv_trip_classification_data
+cv_credentials_status_code+cvo_tranpsportation_border_results
+cvo_border_results+cv_trip_identity};

cvo_database_info_request

This data flow is used within the Manage Commercial Vehicles function and is a request for credential enrollment information to be used by the roadside checkstation or border crossing facility. .

Additional Sizing Assumptions:
SIZE = 1;

cvo_database_update

This data flow is used within the Manage Commercial Vehicles function and contains a list of carriers, vehicles and driver numbers that have been enrolled, together with flags to identify any for which there are safety and tax payment problems. It contains border assessment information to support border clearance decisions. 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
+ cvo_border_results
+ cvo_transportation_border_results}.

Additional Sizing Assumptions:
SIZE=list_size+CVO_VEHS{cv_credentials_details+cv_trip_classification_data
+cv_credentials_status_code+cv_trip_identity
+cvo_border_results+cvo_transportation_border_results};

cvo_declaration_info

This data flow is used within the Manage Commercial Vehicle function. It contains information regarding a pending commercial freight shipment into the U.S. .

Additional Sizing Assumptions:
SIZE=1;

cvo_domestic_transportation_info_for_trade

This data flow is used within the Manage Commercial Vehicle function. It contains real-time or near real-time data for trade regarding transportation activity that is potentially categorized by shipper classification, carrier, commodity, etc. .

Additional Sizing Assumptions:
SIZE=1;

cvo_domestic_transportation_info_from_trade

This data flow is used within the Manage Commercial Vehicle function. It contains real-time or near real-time data from trade regarding trade transportation activity that is potentially categorized by shipper classification, carrier, commodity, etc. .

Additional Sizing Assumptions:
SIZE=1;

cvo_driver_assignment_data

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

cv_driver_number
+ cv_driver_identity_characteristic_key
+ cv_route_number.

Additional Sizing Assumptions:
None

cvo_driver_log

This data flow is used within the Manage Commercial Vehicle function. It contains detailed log information showing hours in service for the current driver. The data flow consists of the following data items each of which is defined in its own DDE:

cv_log_data.

Additional Sizing Assumptions:
None

cvo_driver_log_request

This data flow is used within the Manage Commercial Vehicle function. It contains a request for driver log data. .

Additional Sizing Assumptions:
SIZE=4;

cvo_general_message

This data flow is used within the Manage Commercial Vehicle function and contains general information for a commercial vehicle or driver. The data flow consists of the following data items each of which is defined in its own DDE:

cv_general_input_message.

Additional Sizing Assumptions:
None

cvo_hazmat_spill_data

This data flow is used within the Manage Commercial Vehicle function. It contains information from cargo sensors detecting a hazardous spill as well as vehicle location and carrier identification.

cv_identity_details
+ vehicle_location_for_cv.

Additional Sizing Assumptions:
None

cvo_on_board_safety_data

This data flow is used within the Manage Commercial Vehicle function. It contains safety data measured by on-board sensors including vehicle information, vehicle components, cargo and driver information. .

Additional Sizing Assumptions:
SIZE=4;

cvo_on_board_safety_data_request

This data flow is used within the Manage Commercial Vehicle function. It contains a request for safety data measured by on-board sensors including vehicle information, vehicle components, cargo and driver information. .

Additional Sizing Assumptions:
SIZE=4;

cvo_on_board_sensor_data

This data flow is used within the Manage Commercial Vehicle function and contains data from on-board commercial vehicle sensors and its attached freight equipment. On-board sensor data includes driver status, vehicle condition and freight equipment information. The data flow consists of the following data items each of which is defined in its own DDE:

cv_cargo_status
+ cv_security_systems_diagnostics_results
+ cv_safety_systems_diagnostics_results
+ freight_equipment_id
+ freight_equipment_location
+ freight_operational_data
+ freight_maintenance_data
+ freight_integrity_data
+ vehicle_identity
+ vehicle_location_for_cv.

Additional Sizing Assumptions:
None

cvo_on_board_vehicle_data_request

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

cv_on_board_data_required.

Additional Sizing Assumptions:
None

cvo_payments_data

This data flow is sent from the Centralized Payment Processing function to the Manage Commercial Vehicles function. It contains data that provides the results of payments for tolls. The data flow consists of the following item which is defined in its own DDE:

toll_price_for_cvo
+ cvo_advanced_toll_payment_information.

Additional Sizing Assumptions:
None

cvo_payments_request

This data flow is sent from the Manage Commercial Vehicles function to the Carryout Centralized Payments function. It contains requests for payment for tolls. The data flow consists of the following item which is defined in its own DDE:

toll_price_for_cvo_request
+ cvo_advanced_payments_request.

Additional Sizing Assumptions:
None

cvo_request_freight_route

This data flow is used within the Manage Commercial Vehicles function. It is used to request the preparation of a dynamic route for a commercial vehicle based on the booking information provided by the shipper. The data flow consists of the following items each of which is defined in its own DDE:

constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_load_classification
+ constraint_on_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
+ freight_cargo_data
+ freight_equipment_number.

Additional Sizing Assumptions:
None

cvo_request_hazmat_info

This data flow contains the request for information about hazardous material on-board a commercial vehicle and details of the vehicle itself. .

Additional Sizing Assumptions:
SIZE=2;

cvo_request_tag_data

This data flow is used within the Manage Commercial Vehicle function. It contains a request for tag information (including credit identity, stored value card cash, etc.). .

Additional Sizing Assumptions:
SIZE=4;

cvo_route_data_for_tracking

This data flow contains the planned routing information used to monitor a commercial vehicle for route deviations. The data flow consists of the following data items each of which is defined in its own DDE:

cv_route_number
+ cv_route_data.

Additional Sizing Assumptions:
None

cvo_route_data_request

This data flow contains a request for the scheduled route of a commercial vehicle. The routing information supplied in response to this request is used in support of in-transit commercial vehicle monitoring. .

Additional Sizing Assumptions:
SIZE=4;

cvo_route_for_freight

This data flow contains the route plan used to monitor freight equipment for route deviations. The data flow consists of the following data items each of which is defined in its own DDE:

cv_route_data
+ cv_route_number
+ freight_equipment_number.

Additional Sizing Assumptions:
None

cvo_route_warning

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

cv_route_monitoring_status.

Additional Sizing Assumptions:
None

cvo_safety_inspection

This data flow is used within the Manage Commercial Vehicle function. It contains a record of the results of commercial vehicle safety inspections. .

Additional Sizing Assumptions:
SIZE=4;

cvo_safety_inspection_data

This data flow is used within the Manage Commercial Vehicle function. It consists of a report containing results of a commercial vehicle safety inspection. The data flow consists of the following data items each of which is defined in its own DDE:

cv_archived_inspection_data
+ cv_archived_safety_data.

Additional Sizing Assumptions:
None

cvo_safety_inspection_request

This data flow is used within the Manage Commercial Vehicle function. It contains a request for safety inspection record. .

Additional Sizing Assumptions:
SIZE=4;

cvo_safety_status

This data flow is used within the Manage Commercial Vehicles function and provides the detailed status for the safety of a commercial vehicle or carrier, including safety ratings, inspection summaries, etc... .

Additional Sizing Assumptions:
SIZE=32;

cvo_security_alarm

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

cv_critical_security_problem
+ cv_identity_details
+ vehicle_location_for_cv
+ time
+ date.

Additional Sizing Assumptions:
None

cvo_stored_on_board_sensor_data

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

cvo_on_board_sensor_data.

Additional Sizing Assumptions:
None

cvo_tag_data

This data flow is used within the Manage Commercial Vehicle function. It contains unique tag ID and related vehicle information. The data flow consists of the following data items each of which is defined in its own DDE:

tag_identity
+ cv_trip_identity
+ cv_credentials_details.

Additional Sizing Assumptions:
None

cvo_tag_data_store_request

This data flow is used within the Manage Commercial Vehicle function. It contains a request to store information such as unique tag ID and related vehicle information. .

Additional Sizing Assumptions:
SIZE=1;

cvo_tag_safety_data

This data flow is used within the Manage Commercial Vehicle function. It contains information on safety data measured by on-board sensors. It includes information about the vehicle, the vehicle components, the cargo and the driver. .

Additional Sizing Assumptions:
SIZE=4;

cvo_tag_safety_data_request

This data flow is used within the Manage Commercial Vehicle function. It contains a request for on-board vehicle safety data made by the roadside equipment. .

Additional Sizing Assumptions:
SIZE=4;

cvo_to_toll

This data flow is sent from the Manage Commercial Vehicles function to the Provide Electronic Payment Services function. It contains requests for payment for tolls. The data flow consists of the following item which is defined in its own DDE:

cvo_toll_data_request
+ cvo_payments_request.

Additional Sizing Assumptions:
None

cvo_toll_data_request

This data flow is sent from the Manage Commercial Vehicles function to the Provide Electronic Payment Services function. It contains requests for payment for tolls. The data flow consists of the following item which is defined in its own DDE:

cvo_toll_price_request
+ cvo_advanced_toll_request.

Additional Sizing Assumptions:
None

cvo_toll_payments

This data flow is sent from the Provide Electronic Payment Services function to the Manage Commercial Vehicles function. It contains data that provides the results of payments for tolls. The data flow consists of the following item which is defined in its own DDE:

cvo_toll_price
+ cvo_advanced_toll_confirmation.

Additional Sizing Assumptions:
None

cvo_toll_price

This data flow contains the price for each road segment to which a toll applies for commercial vehicles, with the time and date for when it applies. This data will be used by the Manage Commercial Vehicle Fleet Operations in its efforts to run its operations more efficiently. The data flow consists of the following data items each of which is defined in its own DDE:

toll_segments
+ toll_price
+ toll_price_application_time.

Additional Sizing Assumptions:
None

cvo_toll_price_request

This data flow contains a request for the current prices being charged for toll segments on the road and highway network being used by the commercial vehicles. .

Additional Sizing Assumptions:
SIZE=1;

cvo_tracking_data

This data flow contains vehicle location data for a specific commercial vehicle used for in-transit visibility. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ vehicle_location_for_cv.

Additional Sizing Assumptions:
None

cvo_transportation_border_clearance

This data flow is used within the Manage Commercial Vehicle function. It consists of notifications regarding permissions given for commercial freight shipments to enter the United States. It includes directions for commercial vehicle drivers to proceed to the nearest vehicle weigh and inspection station for further review. The data flow consists of the following data items each of which is defined in its own DDE:

cvo_transportation_border_results.

Additional Sizing Assumptions:
None

cvo_transportation_border_results

This data flow is used within the Manage Commercial Vehicle function. It contains information regarding the granting of permission for commercial freight shipment to enter the U.S. It may include contents regarding directions for the commercial vehicle driver to proceed to another station for further review. .

Additional Sizing Assumptions:
SIZE=1;

cvo_trip_identification_number

This data flow is used within the Manage Commercial Vehicle function. It contains the unique trip load number for a specific cross-border shipment. The data flow consists of the following data items each of which is defined in its own DDE:

cv_trip_identity.

Additional Sizing Assumptions:
None

cvo_trip_log_data

This data flow is used within the Manage Commercial Vehicle function. It contains trip information including the driver's daily log, vehicle location, mileage, and trip activity (including screening, inspection, and border clearance event data. .

Additional Sizing Assumptions:
SIZE=4;

cvo_trip_log_data_request

This data flow is used within the Manage Commercial Vehicle function. It contains a request for trip information (including the driver's daily log, vehicle location, mileage, and trip activity). .

Additional Sizing Assumptions:
SIZE=4;

cvo_vehicle_route

This data flow contains route monitoring data used to determine if a commercial vehicle has deviated from its intended route. The data flow consists of the following data item each of which is defined in its own DDE:

cv_route_data
+ cv_route_number
+ route_monitoring_parameters.

Additional Sizing Assumptions:
None

cvo_violation

This data flow is used within the Manage Commercial Vehicle function. It contains notification information to enforcement agencies about a violation. It describes the statute or regulation that was violated and how it was violated. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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
+ platoon_headway.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

date

This data flow is used within many ITS function and contains the calendar date data normally used to indicate currency or effectivity of other data flows. The codification of the data is YYYYMMDD or equivalent. .

Additional Sizing Assumptions:
SIZE = 8;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

deactivate_traveler_information

This data flow removes all restrictions activated to protect sensitive traveler information. .

Additional Sizing Assumptions:
SIZE=64;

deactivate_traveler_information_restrictions_for_traffic

This data flow is sent to the Manage Traffic function to remove all restrictions activated to protect sensitive traveler information. It consists of the following data items each of which is defined in its own DDE:

deactivate_traveler_information.

Additional Sizing Assumptions:
None

deactivate_traveler_information_restrictions_for_transit

This data flow is sent to the Manage Transit function to remove all restrictions activated to protect sensitive traveler information. It consists of the following data items each of which is defined in its own DDE:

deactivate_traveler_information.

Additional Sizing Assumptions:
None

deactivate_traveler_information_restrictions_for_travelers

This data flow is sent to the Manage Traveler information services function to remove all restrictions activated to protect sensitive traveler information. It consists of the following data items each of which is defined in its own DDE:

deactivate_traveler_information.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

defined_responses

This data flow is used within the Manage Traffic function. It contains the data currently held in the store of defined incident responses and consists of the following data items, each of which is defined in its own DDE:

planned_incident_response
+ incident_info_template
+ incident_type
+ traffic_impact_criteria.

Additional Sizing Assumptions:
None

defined_responses_data

This data store is used within the Manage Traffic function and contains data about defined incident, disaster, or other emergency responses. It consists of the following data items each of which is defined in its own DDE:

incident_type
+ planned_incident_response
+ incident_info_template
+ traffic_impact_criteria
+ predefined_traffic_disaster_plan
+ predefined_traffic_evacuation_plan.

Additional Sizing Assumptions:
None

defined_responses_data_request

This data flow is used within the Manage Traffic function. It contains a request for the data currently held in the store of defined incident responses data. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:

SIZE=2048000;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=4096000;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=64;

demand_overrides

This data flow is used within the Manage Traffic function. It contains changes to the current traffic management strategy that will help to alter the split of travel demand between the various modes of travel. These changes will affect things such as the traffic control strategy at intersections and highway ramps and the status of parking lots. They may also give priority to certain types of vehicles such as those in carpools and vanpools. .

Additional Sizing Assumptions:
SIZE=256;

demand_policy_data

This store is used within the Manage Traffic function to hold data which defines the policies that are to be applied to the implementation of the results of traffic and travel demand forecasting. They can be used to influence such things as traffic control strategies including HOV lane states, parking lot states and charges, route choice parameters, transit fares, etc. .

Additional Sizing Assumptions:
SIZE=4096;

departure_time

This data flow is used within the Provide Driver and Traveler Services function and defines the time at which a driver or traveler's planned or requested trip is to start. It consists of the following data item which is defined in its own DDE:

time.

Additional Sizing Assumptions:
None

desired_arrival_time

This data flow is used within the Provide Driver and Traveler Services function and specifies the target time for arrival at the end of a driver or traveler's planned or requested trip. It consists of the following data item which is defined in its own DDE:

time.

Additional Sizing Assumptions:
None

destination

This data flow is used within the Provide Driver and Traveler Services function. It defines the destination point for a trip request or a route to be used by a traveler or a vehicle. In some instances it will be used as the origin for the use of a particular mode within a trip, e.g. the part of the route for the trip that is to be provided by walking, or ridesharing, or an multimodal service provider. It consists of the following data item which is defined in its own DDE:

route_point.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:

None

detected_threat

This data flow identifies the type of threat (chemical, biological, intrusion, etc.). .

Additional Sizing Assumptions:
SIZE=24;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

device_fault

This data flow contains an indication of a fault in a roadside device. This could be a power failure, or a communications failure. .

Additional Sizing Assumptions:
SIZE=8;

device_identity

This data flow contains an identifier of devices such as smart probe beacons, automated roadway treatment systems, barrier systems, safeguard systems, intrusion detection or alert devices, etc. The identifier would be a code which describes the type of the device. .

Additional Sizing Assumptions:
SIZE=4;

device_setting

This data flow is used to describe the capabilities of the interface device being used by a traveler to receive data. The flow would contain information such as device hardware characteristics (e.g. storage, graphics level, modem speed) and software characteristics (e.g. operating system) .

Additional Sizing Assumptions:
SIZE=64;

device_status

This data flow contains the status of a roadside device. The data flow provides an indication of the state of the device as well as configuration data for the device. .

Additional Sizing Assumptions:
SIZE=8;

device_status_to_roadway_m_and_c

This DFD flow represents the data flows from Provide Roadside Control Facilities to Determine M&C Needs and includes fault status from roadside equipment. It consists of the following items each of which is defined in its own DDE:

indicator_equip_status_from_roads_for_m_and_c
+ indicator_equip_status_from_highways_for_m_and_c
+ signal_override_equip_status_for_m_and_c
+ vehicle_sign_equip_status_for_m_and_c
+ smart_probe_equip_status_for_m_and_c
+ dms_equip_status_for_m_and_c
+ har_equip_status_for_m_and_c
+ barrier_system_equip_status_for_m_and_c.

Additional Sizing Assumptions:
None

direction_commands

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

Additional Sizing Assumptions:
SIZE=1;

disable_commercial_vehicle

This data flow generated by the Manage Emergency Services function requests the safe disabling of a commercial vehicle. The data flow consists of the following data items which are defined in their own DDE:

disable_cv
+ vehicle_identity.

Additional Sizing Assumptions:
None

disable_cv

This data flow is used to request the disabling a commercial vehicle in a safe manner. .

Additional Sizing Assumptions:
SIZE=1;

disaster_and_evacuation_data_from_m_and_c

This data flow is used to coordinate disaster response and evacuation information with maintenance and construction. The data flow consists of the following data items which are defined in their own DDE:

m_and_c_evacuation_resource_response

+ evacuation_plan_coordination_from_m_and_c
+ disaster_response_plan_coordination_from_m_and_c.

Additional Sizing Assumptions:
None

disaster_and_evacuation_data_to_m_and_c

This data flow is used to coordinate disaster response and evacuation information with maintenance and construction. The data flow consists of the following data items which are defined in their own DDE:

m_and_c_evacuation_resource_request
+ evacuation_plan_coordination_to_m_and_c
+ disaster_response_plan_coordination_to_m_and_c.

Additional Sizing Assumptions:
None

disaster_and_evacuation_data_to_traffic

This data flow is used to coordinate disaster response and evacuation information with traffic management. The data flow consists of the following data items which are defined in their own DDE:

disaster_transportation_system_status_for_traffic
+ evacuation_information_for_traffic_management
+ evacuation_transportation_system_status_for_traffic.

Additional Sizing Assumptions:
None

disaster_and_evacuation_info_from_transit

This data flow is used to coordinate disaster response and evacuation information with transit management. The data flow consists of the following data items which are defined in their own DDE:

disaster_response_plan_coordination_from_transit
+ evacuation_plan_coordination_from_transit
+ transit_evacuation_status.

Additional Sizing Assumptions:
None

disaster_and_evacuation_info_to_transit

This data flow is used to coordinate disaster response and evacuation information with transit management. The data flow consists of the following data items which are defined in their own DDE:

disaster_response_plan_coordination_to_transit
+ evacuation_plan_coordination_to_transit
+ transit_evacuation_resource_request
+ disaster_transportation_system_status_for_transit
+ evacuation_information_for_transit_management
+ evacuation_transportation_system_status_for_transit.

Additional Sizing Assumptions:
None

disaster_coordination_response_data

This flow contains the set of disaster response and recovery plans from traffic management, transit management, maintenance and construction, other emergency management, etc. This data is forwarded to the local manage emergency response function for implementation. The data flow consists of the following data items which are defined in their own DDE:

rail_disaster_response_plan
+ transit_disaster_response_plan
+ oem_disaster_response_plan
+ m_and_c_disaster_response_plan
+ traffic_disaster_response_plan.

Additional Sizing Assumptions:
None

disaster_data

This data store is used within the emergency management function for disaster response coordination. It contains preplanned disaster response and recovery plans. In the event that a disaster is declared, a disaster response plan is selected that best fits the current disaster from the store. It is then updated by coordinating with transportation agencies, jurisdictions, etc. to create a disaster response and recovery plan for implementation. The data store consists of the following data item which is defined in its own DDE:

preplanned_disaster_response_plan.

Additional Sizing Assumptions:
None

disaster_data_for_archive

This flow contains the disaster response and recovery plans that will be used by the emergency management functions and sends them to the archive of data. The data flow consists of the following data items which are defined in their own DDE:

emergency_input_for_disaster
+ emergency_disaster_response_plan.

Additional Sizing Assumptions:
None

disaster_network_status_from_traffic_to_m_and_c

This data flow is sent from the Manage Traffic function to Maintenance and Construction. It is used to send details of current and forecasted traffic information, road and weather conditions, and other road network status for use in developing disaster response and recovery plans. It contains the following data items each of which is defined in its own DDE:

link_state_data
+ roadway_environment_conditions
+ predicted_road_network_data
+ current_data.

Additional Sizing Assumptions:
None

disaster_response_evacuation_data

This flow contains the disaster response and recovery data for use by the evacuation function. It contains both the disaster input data and the disaster response plan. The data flow consists of the following data items which are defined in their own DDE:

emergency_input_for_disaster
+ emergency_disaster_response_plan.

Additional Sizing Assumptions:
None

disaster_response_m_and_c_available_resources

This data flow contains the available resources for disaster response from maintenance and construction. The data flow consists of the following data items which are defined in their own DDE:

m_and_c_resources.

Additional Sizing Assumptions:
None

disaster_response_m_and_c_work_plan

This data flow contains the available work plan for disaster response from maintenance and construction. It consists of the following data items each of which is defined in its own DDE:

m_and_c_work_plans.

Additional Sizing Assumptions:
None

disaster_response_oem_available_resources

This data flow contains the available resources for disaster response from another emergency management center. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_vehicle_availability.

Additional Sizing Assumptions:
SIZE= 0;

disaster_response_plan_coordination_from_m_and_c

This data flow is used is used to coordinate disaster response and recovery plans with maintenance and construction. It contains a resulting response and recovery plan that maintenance can use based on modifications to the preplanned response and recovery plan and information available about the disaster. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_disaster_response_plan.

Additional Sizing Assumptions:
None

disaster_response_plan_coordination_from_traffic

This data flow is used is used to coordinate disaster response and recovery plans with traffic management. It contains a resulting response and recovery plan that traffic management can use based on modifications to the preplanned response and recovery plan and information available about the disaster. The data flow consists of the following data item which is defined in its own DDE:

traffic_disaster_response_plan.

Additional Sizing Assumptions:
None

disaster_response_plan_coordination_from_transit

This data flow is used is used to coordinate disaster response and recovery plans with transit management. It contains a resulting response and recovery plan that transit management can use based on modifications to the preplanned response and recovery plan and information available about the disaster. The data flow consists of the following data item which is defined in its own DDE:

transit_disaster_response_plan.

Additional Sizing Assumptions:
None

disaster_response_plan_coordination_to_m_and_c

This data flow is used to coordinate disaster response and recovery plans with maintenance and construction. It contains information regarding the nature of the disaster, and the preplanned response and recovery plan for maintenance. Given this information, maintenance can provide a modified plan that it will use and is appropriate for the given disaster. The data flow consists of the following data items which are defined in their own DDE:

emergency_input_for_disaster
+ evacuation_status_for_disaster_response
+ m_and_c_preplanned_disaster_response_plan
+ disaster_transportation_system_status.

Additional Sizing Assumptions:
None

disaster_response_plan_coordination_to_traffic

This data flow is used to coordinate disaster response and recovery plans with traffic management. It contains information regarding the nature of the disaster, and the preplanned response and recovery plan for traffic. Given this information, traffic management can provide a modified plan that it will use and is appropriate for the given disaster. The data flow consists of the following data items which are defined in their own DDE:

emergency_input_for_disaster
+ evacuation_status_for_disaster_response
+ traffic_preplanned_disaster_response_plan
+ disaster_transportation_system_status.

Additional Sizing Assumptions:
None

disaster_response_plan_coordination_to_transit

This data flow is used to coordinate disaster response and recovery plans with transit management. It contains information regarding the nature of the disaster, and the preplanned response and recovery plan for transit. Given

this information, transit can provide a modified plan that it will use and is appropriate for the given disaster. The data flow consists of the following data items which are defined in their own DDE:

emergency_input_for_disaster
+ evacuation_status_for_disaster_response
+ transit_preplanned_disaster_response_plan
+ disaster_transportation_system_status.

Additional Sizing Assumptions:
None

disaster_response_rail_available_resources

This data flow contains the available resources for disaster response from rail operations. The data flow consists of the following data items each of which is defined in its own DDE:

rail_available_resources.

Additional Sizing Assumptions:
SIZE= 0;

disaster_response_rail_schedule

This data flow contains the available schedule for disaster response from rail operations. It consists of the following data items each of which is defined in its own DDE:

fro-train_schedules.

Additional Sizing Assumptions:
None

disaster_response_traffic_available_resources

This data flow contains the resources traffic management has available for use in the current disaster. The data flow consists of the following data items which are defined in their own DDE:

traffic_resources_available.

Additional Sizing Assumptions:
None

disaster_response_transit_available_resources

This data flow contains the resources transit has available for use in the current disaster. The data flow consists of the following data items which are defined in their own DDE:

transit_resources_available.

Additional Sizing Assumptions:
None

disaster_response_transit_fares

This data flow contains the fares transit will use in the current disaster. The data flow consists of the following data items which are defined in their own DDE:

transit_fare.

Additional Sizing Assumptions:
None

disaster_response_transit_routes

This data flow contains the routes transit will use in the current disaster. It consists of the following data items each of which is defined in its own DDE:

transit_route.

Additional Sizing Assumptions:
None

disaster_response_transit_schedule

This data flow contains the schedule transit will use in the current disaster. The data flow consists of the following data items which are defined in their own DDE:

transit_schedule_data.

Additional Sizing Assumptions:
None

disaster_traffic_control_request_from_other_traffic_management

This data flow is sent to Traffic Management from Other Traffic Management. It contains a request for traffic management center to implement a control strategy to support a non-local disaster response and recovery effort. The data flow consists of the following data items which are defined in their own DDE:

traffic_control_request.

Additional Sizing Assumptions:
None

disaster_traffic_control_request_to_other_traffic_management

This data flow is sent from Traffic Management to Other Traffic Management. It contains a request for the other traffic management center to implement a control strategy to support the local disaster response and recovery effort. The data flow consists of the following data items which are defined in their own DDE:

traffic_control_request.

Additional Sizing Assumptions:
None

disaster_traffic_control_response_from_other_traffic_management

This data flow is sent to Traffic Management from Other Traffic Management. It contains a response from another traffic management center on a control strategy that has been implemented to support a local disaster response and recovery effort. The data flow consists of the following data items each of which is defined in its own DDE:

traffic_control_response.

Additional Sizing Assumptions:
SIZE= 0;

disaster_traffic_control_response_to_other_traffic_management

This data flow is sent from Traffic Management to Other Traffic Management. It contains a response to other traffic management center on a control strategy that has been implemented to support a non-local disaster response and recovery effort. The data flow consists of the following data items each of which is defined in its own DDE:

traffic_control_response.

Additional Sizing Assumptions:
SIZE= 0;

disaster_traffic_data_for_other_traffic_management

This data flow is sent from Traffic Management to Other Traffic Management. It contains information regarding a current disaster and a request for the other traffic management center to implement a control strategy to support the local disaster response and recovery effort. It also contains a response to a request from the other traffic management center for supporting a non-local disaster and recovery effort. It consists of the following data items each of which is defined in its own DDE:

disaster_traffic_information_for_other_traffic_management
+ disaster_traffic_control_request_to_other_traffic_management
+ disaster_traffic_control_response_to_other_traffic_management.

Additional Sizing Assumptions:
SIZE= 0;

disaster_traffic_data_from_other_traffic_management

This data flow is sent to Traffic Management from Other Traffic Management. It contains information regarding a current disaster and a request for the local traffic management center to implement a control strategy to support a non-local disaster response and recovery effort. It also contains a response to a request from the local traffic management center for supporting a local disaster and recovery effort. It consists of the following data items each of which is defined in its own DDE:

disaster_traffic_information_from_other_traffic_management
+ disaster_traffic_control_request_from_other_traffic_management
+ disaster_traffic_control_response_from_other_traffic_management.

Additional Sizing Assumptions:
SIZE= 0;

disaster_traffic_information_for_other_traffic_management

This data flow is sent from Traffic Management to Other Traffic Management. It contains information regarding a current disaster. It consists of the following data items each of which is defined in its own DDE:

emergency_input_for_disaster
+ predefined_traffic_disaster_plan.

Additional Sizing Assumptions:
SIZE= 0;

disaster_traffic_information_from_other_traffic_management

This data flow is sent to Traffic Management from Other Traffic Management. It contains information regarding a current non-local disaster. It consists of the following data items each of which is defined in its own DDE:

emergency_input_for_disaster

+ predefined_traffic_disaster_plan.

Additional Sizing Assumptions:
SIZE= 0;

disaster_transportation_system_status

This data flow consists of a report of the current status of the transportation system during a disaster situation - either during the planning stages prior to a major incident, during the response phase, or during the recovery phase following the disaster. The data contained in the flow is used to assist in developing a coordinated disaster response and recovery plan. The data flow consists of the following data items which are defined in their own DDE:

rail_system_status_for_disaster
+ m_and_c_view_of_road_network_for_disaster
+ network_status_from_traffic_for_disaster
+ transit_status_for_disaster.

Additional Sizing Assumptions:
None

disaster_transportation_system_status_for_isp

This data flow consists of a report of the current status of the transportation system. This data is reported to information service providers as an ongoing status during a disaster. The data flow consists of the following data item which is defined in its own DDE:

disaster_transportation_system_status.

Additional Sizing Assumptions:
None

disaster_transportation_system_status_for_traffic

This data flow consists of a report of the current status of the transportation system. This data is reported to traffic management as an ongoing status during a disaster. The data flow consists of the following data item which is defined in its own DDE:

disaster_transportation_system_status.

Additional Sizing Assumptions:
None

disaster_transportation_system_status_for_transit

This data flow consists of a report of the current status of the transportation system. This data is reported to transit as an ongoing status during a disaster. The data flow consists of the following data item which is defined in its own DDE:

disaster_transportation_system_status.

Additional Sizing Assumptions:
None

dispatch_info_for_m_and_c_fleet

This data is used within the Manage Maintenance and Construction function and contains dispatch parameters from the center personnel for use by the Maintenance and Construction vehicle fleet manager. .

Additional Sizing Assumptions:
SIZE=16;

dispatch_orders_to_mcv

This data is used within the Manage Maintenance and Construction function and contains dispatch information from the vehicle fleet manager to the maintenance and construction vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

m_and_c_center_identity
+ vehicle_id_for_mcv
+ time
+ date
+ mcv_dispatch_instructions
+ alert_and_threats_for_maint_field_personnel.

Additional Sizing Assumptions:
None

dispatch_response_from_mcv

This data flow is sent from the maintenance and construction vehicle to the vehicle fleet management to acknowledge that the vehicle has been dispatched and is on its way to the location identified in the dispatch request.
.

Additional Sizing Assumptions:
SIZE=4;

display_map_traveler_update_cost

This data flow contains the cost of an update to the digitized map data used as the background to displays of traffic and travel information on a traveler's personal device. .

Additional Sizing Assumptions:
SIZE=2;

dms_advisory_text

This data flow is used within the Manage Traffic function and contains details of the actual advisory text strings that are to be output to drivers and pedestrians using indicators that are dynamic message signs (DMS). The advisory text string may be one of several types depending on the type of information being provided. The data flow will consist of one of the following data items each of which is defined in its own DDE:

[dms_highway_open_close | dms_incident_warning | dms_weather_warning | dms_auto_treat_info | roadway_information_incident_updates | barrier_info | safeguard_info].

Additional Sizing Assumptions:
SIZE=1{dms_highway_open_close+dms_incident_warning+dms_weather_warning+dms_auto_treat_info +roadway_information_incident_updates+barrier_info+safeguard_info}/6;

dms_allocation

This data flow is used within the Manage Traffic function and contains details of the way in which dynamic message signs (DMS) are allocated to the road and highway network within the geographic area controlled by ITS. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ route_segment_end_point
+ route_segment_identity
+ route_segment_start_point}.

Additional Sizing Assumptions:
SIZE=list_size+DMS_SIGN_CONTROLLERS{indicator_identity+route_segment_end_point
+route_segment_identity+route_segment_start_point};

dms_auto_treat_data_from_maint

This data flow contains the actual data from which instructions to the driver and traveler can be produced by indicators at dynamic message (DMS) and other types of signs at the roadside. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}.

Additional Sizing Assumptions:
None

dms_auto_treat_data_from_roadway

This data flow contains the actual data from which instructions to the driver and traveler can be produced by indicators at dynamic message (DMS) and other types of signs at the roadside. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}.

Additional Sizing Assumptions:
None

dms_auto_treat_info

This data flow is the DMS state which gives warning of activation of the roadway automated treatment device, indicating the condition that warranted the device's activation, or that treatment is in progress. .

Additional Sizing Assumptions:
SIZE=8;

dms_auto_treat_status_to_maint

This data flow contains the Dynamic Message Sign status for sign control data to be sent to the roadway automated treatment management function for maintenance and construction. This includes status from signs operating at the roadside in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ device_status
+ dms_fault}.

Additional Sizing Assumptions:

SIZE=list_size+ROAD_SIGNS{indicator_identity+device_status+dms_fault};

dms_barrier_activated_from_roadway

This data flow from an automated barrier system causes a roadway information device such as a dynamic message sign (DMS) to display an indication of the status of the barrier system (e.g. open, closed). The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}.

Additional Sizing Assumptions:
None

dms_barrier_activated_from_traffic

This data flow contains the actual data from which instructions to the driver and traveler can be produced by indicators at dynamic message (DMS) and other types of signs at the roadside to display the status of a barrier system (e.g. open, closed). It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}.

Additional Sizing Assumptions:
None

dms_control_data

This data flow contains the actual control data to be passed to an indicator that is a dynamic message sign. .

Additional Sizing Assumptions:
SIZE=64;

dms_data

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators at dynamic message (DMS) and other types of signs at the roadside. It consists of the following data items each of which is defined in its own DDE:

indicator_sign_control_data
+ indicator_sign_control_data_for_hri
+ dms_data_for_evacuation.

Additional Sizing Assumptions:
None

dms_data_for_evacuation

This flow contains information regarding the evacuation to be sent to a dynamic message sign for distribution to the traveler. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule.

Additional Sizing Assumptions:
None

dms_data_from_m_and_c

This data flow contains the actual data from which instructions to the driver and traveler can be produced by indicators at dynamic message (DMS) and other types of signs at the roadside. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}.

Additional Sizing Assumptions:
None

dms_data_from_mcv

This data flow contains the actual data from which instructions to the driver and traveler can be produced by indicators at dynamic message (DMS) and other types of signs at the roadside. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1024000;

dms_downstream_identity

This data flow is used within the Manage Traffic function and provides the identity of the dynamic message sign (DMS) that is downstream of the DMS to which the data relates. The data flow consists of the following data item which is defined in its own DDE:

indicator_identity.

Additional Sizing Assumptions:
None

dms_equip_status_for_m_and_c

This data flow provides a report to the Manage Maintenance and Construction function containing the status of dynamic message signs operating at the roadside in the local geographic and/or jurisdictional area(s). By monitoring this data flow, the receiving process can monitor the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

list_size

+ list_size{indicator_identity
+ dms_advisory_text}
+ dms_fault.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_SIGNS{indicator_identity+dms_advisory_text};

dms_fault

This data flow is sent to the Manage Traffic function and contains an indication of a fault in the Dynamic Message Sign device. This could be a power failure, or a communications failure.

dms_identity.

Additional Sizing Assumptions:
None

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 .

Additional Sizing Assumptions:
SIZE=8;

dms_hri_allocation

This data flow is used within the Manage Traffic function. It contains details of the way in which dynamic message signs (DMS) are allocated to the road network within the geographic area controlled by ITS. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{crossing_id}.

Additional Sizing Assumptions:
SIZE=list_size+2{GRADE_CROSSINGS{crossing_id}};

dms_identity

This data flow contains a numerical identifier of an individual Dynamic Message Sign. .

Additional Sizing Assumptions:
SIZE=2;

dms_incident_warning

This data flow is used within the Manage Traffic function and is the DMS state which gives warning of an incident to travelers. .

Additional Sizing Assumptions:
SIZE=8;

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 .

Additional Sizing Assumptions:
SIZE=8;

dms_safeguard_activated_from_roadway

This data flow from an automated safeguard system (e.g., blast shields, exhaust fans) causes a roadway information device such as a dynamic message sign (DMS) to display an indication of the status of the safeguard system (e.g. ongoing, just completed, about to begin). The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}.

Additional Sizing Assumptions:
None

dms_safeguard_activated_from_traffic

This data flow contains the actual data from which instructions to the driver and traveler can be produced by indicators at dynamic message (DMS) and other types of signs at the roadside to display the status of the safeguard system (e.g. ongoing, just completed, about to begin). It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}.

Additional Sizing Assumptions:
None

dms_status

This data flow contains the Dynamic Message Sign status for sign control data, operating at the roadside in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + dms_advisory_text
    + dms_fault}.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_SIGNS{indicator_identity+dms_advisory_text};

dms_status_for_m_and_c

This data flow contains the Dynamic Message Sign status for sign control data to be sent to the roadway management function for maintenance and construction. This also includes operating of the sign at the roadside in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ device_status
+ dms_fault}.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_SIGNS{indicator_identity+dms_fault};

dms_status_for_mcv

This data flow contains the Dynamic Message Sign status for sign control data to be sent to the roadway management function for maintenance and construction. This also includes operating of the sign at the roadside in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

indicator_identity+ dms_fault.

Additional Sizing Assumptions:
None

dms_upstream_identity

This data flow is used within the Manage Traffic function and provides the identity of the dynamic message sign (DMS) that is upstream of the DMS to which the data relates. The data flow consists of the following data item which is defined in its own DDE

indicator_identity.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=8;

dms_wide_area_alert_information

This data flow is used within the Manage Traffic function and contains details on the actual message pertaining to major emergencies, man-made disasters, civil emergencies, or child abductions that are to be output to drivers and pedestrians using indicators that are dynamic message signs (DMS). .

Additional Sizing Assumptions:
SIZE=128;

dre_data_for_incident

This data flow is sent from the Manage Emergency Services function to the Manage Incident function. It contains the following data item which is defined in its own DDE:

disaster_response_plan_coordination_to_traffic
+ evacuation_plan_coordination_to_traffic
+ traffic_evacuation_resource_request.

Additional Sizing Assumptions:
None

driver_advanced_payment_at_lot

This data flow is used within the Provide Electronic Payment Services function and contains details of the previously notified credit stored on the driver's payment instrument and the advanced parking lot charge, and/or toll cost, and/or transit fare which has to be deducted. It consists of the following data items each of which is defined in its own DDE:

stored_credit
+ parking_lot_cost
+ toll_cost
+ transit_fare.

Additional Sizing Assumptions:
None

driver_advanced_payment_at_toll

This data flow is used within the Provide Electronic Payment Services function and contains details of the previously notified credit stored on the driver's payment instrument and the advanced parking lot charge, and/or toll cost, and/or transit fare which has to be deducted. It consists of the following data items each of which is defined in its own DDE:

stored_credit
+ parking_lot_cost
+ toll_cost
+ transit_fare.

Additional Sizing Assumptions:
None

driver_advanced_payment_for_map

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function. It contains the cost of the update to the in-vehicle map database that must be deducted from the credit currently stored on the traveler card / payment instrument. The data flow consists of the following data items each of which is defined in its own DDE:

navigable_map_vehicle_update_cost
+ stored_credit.

Additional Sizing Assumptions:
None

driver_advisory_information

This data flow is used within the Provide Driver and Traveler Services function and contains traffic, transit advisory information, yellow pages information, or event 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
+ event_information_advisory_data

+ safety_warnings
+ position_warnings
+ vehicle_control_status
+ vehicle_signage_data
+ vision_data
+ vehicle_status_details
+ yellow_pages_advisory_data
+ evacuation_traveler_information_for_vehicle
+ transportation_system_status_for_vehicle.

Additional Sizing Assumptions:
None

driver_advisory_information_request

This data flow is used within the Provide Driver and Traveler 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
+ yellow_pages_advisory_requests
+ event_information_advisory_requests
+ evacuation_information_request.

Additional Sizing Assumptions:
None

driver_ahs_input

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

Additional Sizing Assumptions:
SIZE=2;

driver_broadcast_information

This data flow is used within the Provide Driver and Traveler Services function and contains traffic and transit 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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

driver_credit_identity

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function. It contains the credit identity of a driver or the amount of stored credit obtained from the traveler card / payment instrument terminator and is used for purchasing updates to the in-vehicle navigable map database. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit.

Additional Sizing Assumptions:
None

driver_guidance_accepted

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

Additional Sizing Assumptions:
SIZE=1;

driver_guidance_data

This data flow is used within the Provide Driver and Traveler Services function and contains data to be used in a vehicle guidance request. It consists of some or all of the following data items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:
None

driver_guidance_request

This data flow is used within the Provide Driver and Traveler Services function and requests on-line dynamic or autonomous guidance for the vehicle in which the driver is traveling. The choice of the type of guidance made by the driver is shown by the character used in the data flow and will be 'D' for infrastructure based dynamic, 'L' for autonomous but using link journey and queue times provided from the infrastructure and 'A' for totally autonomous, i.e. no contact with anything outside the vehicle, except for broadcast data used to determine location. .

Additional Sizing Assumptions:
SIZE=1;

driver_identity

This data item contains the identity of the commercial vehicle driver. .

Additional Sizing Assumptions:
SIZE=40;

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. .

Additional Sizing Assumptions:
SIZE=64;

driver_input

This data flow is used within the Provide Driver Monitoring and Control function. It contains the vehicle control mode selected by the driver. The choice of modes is limited to manual (indicated by a zero), automatic control, or platoon following. The last two may be split up into various forms, e.g. automatic control may be speed control, headway control lane control, or any combination of these. .

Additional Sizing Assumptions:
SIZE=2;

driver_input_request

This data flow is used within the Provide Driver and Traveler Services function to request the driver to input data for a route over which guidance has been requested, but for which data has not previously been entered and stored locally. .

Additional Sizing Assumptions:
SIZE=256;

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. .

Additional Sizing Assumptions:
SIZE=1;

driver_map_update_payment_request

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains a request that payment be made for an update of the navigable map database used for on-line vehicle guidance. The payment will be made by debiting the credit identity with the cost through the financial institution terminator. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ credit_identity
+ navigable_map_vehicle_update_cost.

Additional Sizing Assumptions:
None

driver_map_update_payment_response

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function and contains the response to a previous request from the driver that payment be made for an update of the navigable map database used for on-line vehicle guidance. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ vehicle_identity.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=128;

driver_map_update_request

This data flow is used within the Provide Driver and Traveler Services function and contains a request for an update of the digitized map used data used for on-line vehicle guidance. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ vehicle_identity.

Additional Sizing Assumptions:
None

driver_map_update_response

This data flow is used within the Provide Driver and Traveler Services function and contains the response to a previous request from the driver for an update of the navigable map used database used for on-line vehicle guidance. The success of this transaction will be indicated by the confirmation flag data item. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ navigable_map_vehicle_update_cost

+ stored_credit
+ vehicle_identity.

Additional Sizing Assumptions:
None

driver_parking_payment_credit_identity

This data flow is used within the Provide Electronic Payment Services function. It contains the credit identity or the amount of stored credit obtained from the payment instrument terminator on-board a vehicle at a parking lot. This data is used for payment of parking lot charges and if required, advanced payment for tolls, and/or parking lot charges, and/or transit fares. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit.

Additional Sizing Assumptions:
None

driver_personal_emergency_request

This data flow is used within the Provide Driver and Traveler Services function to carry data about an emergency situation that applies to a driver and his vehicle. It contains the following data items each of which is defined in its own DDE:

vehicle_identity
+ vehicle_location_for_emergencies
+ vehicle_status_details
+ driver_information
+ call_back_information.

Additional Sizing Assumptions:
None

driver_safety_status

This data flow contains information about the driver's state, including the driver's ability to control the vehicle (alcohol on the breath, too many mistakes, etc.) and injuries or other detectable problems with the vehicle's occupants. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=2;

driver_status_update

This data flow is used by the Provide Driver and Traveler Services function to send additional data about the driver for an emergency declared by a driver to the Manage Emergency Services function. .

Additional Sizing Assumptions:
SIZE=32;

driver_toll_payment_credit_identity

This data flow is used within the Provide Electronic Payment Services function. It contains the credit identity or the amount of stored credit obtained from the payment instrument terminator on-board a vehicle as it passes through a toll plaza. This data is used for payment of tolls and if required, advanced payments for tolls, and/or parking lot charges, and/or transit fares. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1024;

duration

This data flow is used within many ITS functions. It contains the expected duration of a particular activity. .

Additional Sizing Assumptions:
SIZE = 2;

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.

Additional Sizing Assumptions:
None

dynamic_parking_information_for_coordination

This data flow contains dynamic parking information that is sent to other parking management systems in the region. This includes parking lot occupancy (e.g., number of spaces filled) and state (e.g., full, almost full). This data flow is made up of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_identity
    + parking_lot_state
    + parking_lot_occupancy}.

Additional Sizing Assumptions:
None

dynamic_parking_information_for_isp

This data flow contains dynamic parking information that would be of interest to travelers. This includes parking lot occupancy (e.g. number of spaces filled) and state (e.g. full, almost full). This data flow is made up of the following data items, each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_state
    + parking_lot_identity
    + parking_lot_occupancy}.

Additional Sizing Assumptions:
None

dynamic_parking_information_for_traffic

This data flow contains dynamic parking information that would be of interest to traffic management. This includes parking lot occupancy (e.g. number of spaces filled), state (e.g. full, almost full) and detailed arrival and departure information. This data flow is made up of the following data items, each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_state
    + parking_lot_identity
    + parking_lot_occupancy}.

Additional Sizing Assumptions:
None

dynamic_parking_information_for_transit

This data flow contains dynamic parking information that would be of interest to transit management. This includes parking lot occupancy (e.g. number of spaces filled), state (e.g. full, almost full) and detailed arrival and departure information. This data flow is made up of the following data items, each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_state
    + parking_lot_identity
    + parking_lot_arrival_details
    + parking_lot_departure_details
    + parking_lot_occupancy}.

Additional Sizing Assumptions:
None

dynamic_traveler_guidance_data

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

route
+ route_cost.

Additional Sizing Assumptions:
None

dynamic_traveler_guidance_data_request

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

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

Additional Sizing Assumptions:
None

dynamic_vehicle_guidance_data

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

route
+ route_cost.

Additional Sizing Assumptions:
None

dynamic_vehicle_guidance_data_request

This data flow is used within the Provide Driver and Traveler Services function. It contains data for use as the request for on-line dynamic guidance of the vehicle in which the driver is traveling. The data flow consists of the following data items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:

None

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

em_archive_data

This data flow from Emergency Management to Manage Archive Data contains the archive data stored in the Emergency Management function along with the meta data describing the data as collected from field equipment. This data can include a catalog of the data held by the function. The data flow is made up of the following items, each of which is defined in its own DDE:

em_archive_catalog
+ em_data_for_archive.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

em_archive_status

This data flow is sent from the Manage Archived Data function to the Emergency Management function. It is the status returned when transit archive data is sent from the Emergency Management function to the Manage Archived Data function. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

em_data_for_incident

This data flow is sent from the Manage Emergency Services function to the Manage Incident function. It contains the following data item which is defined in its own DDE:

incident_details
+ incident_response_status
+ resource_request
+ remote_video_image_control
+ traveler_information_restrictions_for_traffic
+ deactivate_traveler_information_restrictions_for_traffic.

Additional Sizing Assumptions:
None

em_operational_data

This data flow contains information about the incidents that have been responded to by the Emergency Management function. There are two sets of data, one containing detailed information about the incident such as specific location and number of persons involved. Another set containing general information such as time and date of the incident will also be used. The data flow consists of the following data items each of which is defined in its own DDE:

archive_provide_emergency_service_allocation_data

+ emergency_service_log_for_archive
+ archive_manage_emergency_vehicle_data
+ sensor_data_for_archive
+ surveillance_data_for_archive
+ threat_data_for_archive
+ disaster_data_for_archive
+ evacuation_data_for_archive.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

em_resource_request

This flow contains a request from emergency management for specific resources that emergency management has been told are available for use. .

Additional Sizing Assumptions:
SIZE=48;

em_resource_response

This flow contains a response to emergency management about specific resources that emergency management has requested for use. .

Additional Sizing Assumptions:
SIZE=48;

em_to_device_control

This data flow is sent from the Manage Emergency Services function to the Manage Traffic function. It contains data about the preemption requests needed by emergency vehicles. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_traffic_control_request
+ emergency_vehicle_preemptions.

Additional Sizing Assumptions:
None

em_to_payment

This data flow contains information going from the Manage Emergency Services function to the Provide Electronic Payment Services function. It consists of the following items each of which is defined in its own DDE:

wide_area_alert_notification_for_tolls
+ evacuation_toll_change_request.

Additional Sizing Assumptions:
None

emergency_center_identity

This data flow and contains the identity of an emergency center (i.e. an emergency management function) that is either sending data about incidents in its own local area or is receiving data about incidents in the area served by the local function. .

Additional Sizing Assumptions:
SIZE=16;

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.

Additional Sizing Assumptions:
None

emergency_data_for_other_TMC

This data flow is used within the Manage Traffic function and contains the portion of a strategy that gives preemption to emergency vehicles that relates to roads (surface streets) and highways that are outside the area

served by the local TMC. This data will be sent to the appropriate other TMC's so that they can implement the requested preemption measures to give the emergency vehicles preemption throughout their route. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_traffic_control_request
+ selected_emergency_vehicle_strategy.

Additional Sizing Assumptions:
None

emergency_data_for_transit

This data flow provides information about current incidents to be used by the Manage Transit function. It contains the following data item which is defined in its own DDE:

incident_details.

Additional Sizing Assumptions:
None

emergency_data_request

This data flow shall allow an emergency service provider to request additional information from the vehicle following emergency notification. It shall allow the vehicle and driver to carry on a continuous dialogue with an emergency operator to make sure that the emergency service providers have the information they need to be well prepared to handle the incident. It shall also allow the travelers in a vehicle to request operation of remote controlled security functions of a vehicle such as a door unlocking function. It includes the following items each defined in its own DDE:

request_for_additional_data.

Additional Sizing Assumptions:
None

emergency_disaster_data

This data flow is used within Emergency Management Disaster Response function. It contains the data regarding the type of disaster and related information including the current conditions or status of the transportation infrastructure. The data contained in the flow is used to assist in developing a coordinated disaster response and recovery plan. The data flow consists of the following data item which is defined in its own DDE:

emergency_input_for_disaster
+ evacuation_status_for_disaster_response
+ disaster_transportation_system_status.

Additional Sizing Assumptions:
None

emergency_disaster_response_plan

This flow contains the set of disaster response and recovery plans from traffic management, transit management, maintenance and construction, other emergency management, etc. This data is forwarded to the local manage emergency response function for implementation. It is also sent to evacuation assessment functions, should an evacuation also be required. The data flow consists of the following data items which are defined in their own DDE:

rail_disaster_response_plan

+ transit_disaster_response_plan
+ oem_disaster_response_plan
+ m_and_c_disaster_response_plan
+ traffic_disaster_response_plan.

Additional Sizing Assumptions:
None

emergency_evacuation_data

This data flow is used within Emergency Management Disaster Response function. It contains the data regarding the type of situation requiring an evacuation and related information including the current conditions or status of the transportation infrastructure. The data contained in the flow is used to assist in developing a coordinated evacuation plan. The data flow consists of the following data items which are defined in their own DDE:

emergency_input_for_disaster
+ emergency_disaster_response_plan
+ evacuation_area
+ evacuation_schedule
+ evacuation_transportation_system_status.

Additional Sizing Assumptions:
None

emergency_evacuation_plan

This flow contains the set of evacuation plans from traffic management, transit management, maintenance and construction, other emergency management, etc. This data is forwarded to the manage evacuation function for implementation. The data flow consists of the following data items which are defined in their own DDE:

rail_evacuation_plan
+ transit_evacuation_plan
+ oem_evacuation_plan
+ m_and_c_evacuation_plan
+ traffic_evacuation_plan
+ emergency_input_for_disaster
+ shelter_information
+ evacuation_area.

Additional Sizing Assumptions:
None

emergency_evacuation_status

This flow contains the evacuation status report and the evacuation plan. This data is forwarded to back to assess system status to assist in evaluating the current status of the transportation system. The data flow consists of the following data items which are defined in their own DDE:

emergency_evacuation_plan
+ evacuation_status_report.

Additional Sizing Assumptions:
None

emergency_input_for_disaster

This data flow contains a status report of the implemented disaster response and recovery plan. It is sent to the disaster management functions so that modifications to the existing response plan can be made based on the current information available.

emergency_status_feedback.

Additional Sizing Assumptions:
SIZE= 0;

emergency_message_auto_output

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

Additional Sizing Assumptions:
SIZE=192;

emergency_message_driver_output

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

Additional Sizing Assumptions:
SIZE=192;

emergency_message_traveler_output

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

Additional Sizing Assumptions:
SIZE=192;

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. .

Additional Sizing Assumptions:
SIZE = 2;

emergency_request_driver_acknowledge

This data flow is used by the Manage Emergency Services function to acknowledge that the request for emergency services previously sent by the driver has been received and is therefore sent to the Provide Driver and Traveler Services function for output. .

Additional Sizing Assumptions:
SIZE=1;

emergency_request_driver_details

This data flow is used by the Provide Driver and Traveler Services function to send data about an emergency declared by a driver to the Manage Emergency Services function. It contains the following data items each of which is defined in its own DDE:

date
+ driver_personal_emergency_request
+ time.

Additional Sizing Assumptions:
None

emergency_request_from_transit_operator

This data flow is sent from the transit vehicle operator on-board a transit vehicle to the Manage Emergency Services function and includes a silent alarm request for emergency assistance. .

Additional Sizing Assumptions:
SIZE=8;

emergency_request_personal_traveler_acknowledge

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

confirmation_flag.

Additional Sizing Assumptions:
None

emergency_request_personal_traveler_details

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

date
+ time
+ traveler_personal_emergency_request.

Additional Sizing Assumptions:
None

emergency_request_vehicle_acknowledge

This data flow is used by the Manage Emergency Services function to acknowledge that the request for emergency services previously sent automatically by the vehicle through processes in the Provide Vehicle Control and Monitoring function has been received. It is sent to the Provide Driver and Traveler Services function for output. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

emergency_response_data_for_communications

This data flow is used within the Manage Emergency Services function. It contains details of a reported emergency and the response plan for use by the process that communicates with drivers, travelers, the Manage Transit function, and the emergency telephone service or E911 operator, when they have reported emergencies. It may also contain a set of commands to send to the vehicle's security system or a request for additional data from the vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_response_plan_data
+ identified_emergency_details
+ emergency_data_request.

Additional Sizing Assumptions:
None

emergency_response_data_for_management

This data flow is used within the Manage Emergency Services function. It contains details of a reported emergency and the response plan for use by the process that manages emergency responses. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_response_plan_data
+ identified_emergency_details
+ disaster_coordination_response_data.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=10240000;

emergency_response_to_transit_operator

This data flow is sent to the transit vehicle operator on-board a transit vehicle from the Manage Emergency Services function and contains acknowledgment of an emergency previously declared by the transit vehicle operator. .

Additional Sizing Assumptions:
SIZE=8;

emergency_route_request

This data flow contains request for traffic management to provide a route to support emergency operations during a disaster. The request could be for a long term or short term route. It might also be a request for priority or preemptive routes. In addition it could include a request to close a route for the exclusive use of emergency vehicles. .

Additional Sizing Assumptions:
SIZE=48;

emergency_route_response

This data flow contains a route provided by traffic management to support emergency operations during a disaster. The route could be for a long term or short term duration. It might also include priority or preemptive signal controls or the exclusive right to use a specific route. .

Additional Sizing Assumptions:
SIZE=48;

emergency_service_action_details

This data flow is used within the Manage Emergency Services function. It contains details of the responses to each emergency that are stored in the log of emergency service actions. The data flow consists the following items, each of which is defined in its own DDE:

emergency_service_allocations
+ emergency_service_type_requested
+ emergency_service_type_override
+ emergency_vehicle_route
+ emergency_vehicle_arrival_time
+ identified_emergency_details.

Additional Sizing Assumptions:
None

emergency_service_action_log

This data store is used within the Manage Emergency Services function. It contains the log of actions for each incident processed within the Manage Emergency Services area of ITS. The data store consists the following items, each of which is defined in its own DDE:

list_size
+ list_size{emergency_service_action_details
    + incident_action_time}.

Additional Sizing Assumptions:
SIZE=list_size+ERMS_CALLS{emergency_service_action_details+incident_action_time};

emergency_service_allocation_criteria

This store is used within the Manage Emergency Services function and contains the default allocations of emergency services type (or types) for each type of incident. It contains the following data items each of which is defined in its own DDE:

incident_type
+ emergency_service_allocations
+ enforcement_agency_allocations
+ violation_type.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=8;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

emergency_service_allocation_data_updates

This data flow is used within the Manage Emergency Services function and contains an update to the pre-planned set of procedures directing an appropriate response to an emergency. It consists of the following data items each of which is defined in its own DDE:

incident_type
+ emergency_service_allocations.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

emergency_service_allocations

This data item is used within the Manage Emergency Services function and defines the type (or types) of emergency service required for a particular emergency incident. The types may be any of the following: none, cancel previous request; police; fire; ambulance; towing; paramedics; wrecking crew; aircraft fire service; rail breakdown crew; SWAT. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

emergency_status_feedback

This flow contains a status response on the current management conditions of an emergency. It is sent to the determine coordinated response so that the status can be reassessed allowing response to be improved. The data flow consists of the following data items which are defined in their own DDE:

rail_emergency_status_report
+ transit_emergency_status_report
+ traffic_emergency_status_report
+ oem_emergency_status_report.

Additional Sizing Assumptions:
None

emergency_status_report_for_oem

This flow contains the status of emergency management in supporting an emergency event. .

Additional Sizing Assumptions:
SIZE=48;

emergency_to_m_and_c

This DFD flow represents the data flows from Manage Emergency Services to Manage Maintenance and Construction. The DFD flow consists of the following data flows each of which is defined in its own DDE:

m_and_c_plan_feedback_from_emerg
+ incident_info_from_emerg
+ incident_response_status_from_emerg
+ m_and_c_resource_request_from_emerg
+ env_probe_info_from_emergency
+ roadway_maint_action_req_from_emerg
+ security_sensor_equip_status_for_m_and_c
+ security_surveillance_equip_status_for_m_and_c
+ threat_info_for_maint
+ infrastructure_integrity_status_for_maint
+ barrier_system_equip_status_for_m_and_c
+ safeguard_system_equip_status_for_m_and_c
+ wide_area_alert_notification_for_maint
+ disaster_and_evacuation_data_to_m_and_c

+ transportation_system_status_to_m_and_c
+ evacuation_information_for_m_and_c.

Additional Sizing Assumptions:
None

emergency_traffic_control_request

This data flow is sent from the Manage Emergency Services function to the Manage Traffic function. It contains a list of the route segments that have been provided for use by an emergency vehicle, together with the arrival time at each segment. The data will be used by the Manage Traffic function to generate changes to the current traffic management strategy to give the emergency vehicle preemption. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ list_size
+ list_size{route_segment_identity + route_segment_estimated_arrival_time}
+ time.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

emergency_transit_fares

This data flow contains emergency fare information for use by transit. The flow contains transit fares to be used in the current emergency.

disaster_response_transit_fares
+ evacuation_transit_fares.

Additional Sizing Assumptions:
None

emergency_transit_route

This data flow contains emergency routing information for use by transit. The flow contains transit routes to be used in the current emergency.

disaster_response_transit_routes
+ evacuation_transit_routes.

Additional Sizing Assumptions:

None

emergency_transit_schedule

This data flow contains emergency schedule information for use by transit. The flow contains transit schedules to be used in the current emergency.

disaster_response_transit_schedule
+ evacuation_transit_schedule.

Additional Sizing Assumptions:
None

emergency_transit_schedule_information_for_traffic

This data flow contains information on transit service or schedule changes that have been put into effect in response to disasters or other emergencies. The data flow consists of the following data items which are defined in their own DDE:

transit_schedule_data.

Additional Sizing Assumptions:
None

emergency_vehicle_acknowledge

This data flow is used within the Manage Emergency Services function. It contains the acknowledgment of data received by the emergency vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_vehicle_route
+ emergency_vehicle_arrival_time
+ incident_status_update.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

emergency_vehicle_availability

This data flow contains a listing of the emergency vehicles that are available for use. It consists of the following data items each of which is defined in its own DDE:

emergency_vehicle_status_data_for_responses.

Additional Sizing Assumptions:
SIZE= 0;

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.

Additional Sizing Assumptions:
None

emergency_vehicle_dispatch_failure

This data flow is used within the Manage Emergency Services function and contains the indication that the dispatch of emergency vehicles in response to an incident has failed because insufficient vehicles of the right type could be found. The data flow only shows the type(s) for which the dispatch failed and/or the numbers of each type that it was not possible to dispatch. It consists of the following data items each of which is defined in its own DDE:

incident_number
+ emergency_vehicle_type
+ emergency_vehicle_number.

Additional Sizing Assumptions:
None

emergency_vehicle_dispatch_request

This data flow is used within the Manage Emergency Services function and contains data for the request for an emergency vehicle dispatch. The data flow specifies the information needed to respond to a particular incident. It consists of the following data items which are defined in their own DDEs.

emergency_center_identity
+ emergency_vehicle_identity
+ emergency_vehicle_status_code
+ time
+ date
+ emergency_vehicle_incident_details.

Additional Sizing Assumptions:
SIZE=8{emergency_center_identity+emergency_vehicle_identity+emergency_vehicle_status_code+ time+date+emergency_vehicle_incident_details};

emergency_vehicle_dispatch_response

This data flow provides current en route status and requests any additional current incident response status .

Additional Sizing Assumptions:
SIZE=64;

emergency_vehicle_dispatch_status

This data flow is used within the Manage Emergency function and shows whether or not the requested emergency vehicle dispatch was successful. The confirmation flag data flow is used for this purpose. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ emergency_vehicle_type
+ emergency_vehicle_number
+ incident_number.

Additional Sizing Assumptions:
SIZE=confirmation_flag+incident_number
+8{emergency_vehicle_type+emergency_vehicle_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. .

Additional Sizing Assumptions:
SIZE=16;

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.

Additional Sizing Assumptions:
None

emergency_vehicle_junction_preemption

This data flow contains data necessary for an emergency services vehicle to be given preemption 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 preemption to the correct phase(s) for any received preemption request. .

Additional Sizing Assumptions:
SIZE=1;

emergency_vehicle_number

This data flow contain the number of vehicles of a particular type that are needed to respond to a particular incident. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=102400;

emergency_vehicle_pedestrian_preemption

This data flow contains data necessary for an emergency services vehicle to be given preemption at an indicator that is particular set of pedestrian signals. The data flow is sent directly from the emergency vehicle to the pedestrian controller, which is assumed to be capable of giving preemption to the correct phase. .

Additional Sizing Assumptions:
SIZE=1;

emergency_vehicle_preemptions

This data flow is sent by the Manage Emergency Services function to the Manage Traffic function. It contains the data necessary for an individual emergency services vehicle and the stream of traffic in which the vehicle is traveling to be given preemption at 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.

Additional Sizing Assumptions:
None

emergency_vehicle_ramp_preemption

This data flow is sent by the Manage Emergency Services function to the Manage Traffic function. It contains the data necessary for an emergency services vehicle to be given preemption at an indicator that is particular set of highway entry ramp control signals. The data flow is sent directly from the emergency vehicle to the ramp controller, which is assumed to be capable of giving preemption to the correct ramp or lane if multiple ramps or lanes are involved. .

Additional Sizing Assumptions:
SIZE=1;

emergency_vehicle_response_request

This data flow is used within the Manage Emergency Services function and contains data for the request for an emergency vehicle to be processed by the Select Response Mode function. The data flow specifies the information needed to respond to a particular incident. It consists of the following data items which are defined in their own DDEs.

emergency_center_identity
+ emergency_vehicle_identity
+ emergency_vehicle_status_code
+ time
+ date
+ emergency_vehicle_incident_details
+ weather_service_emergency_information
+ traffic_data_for_emergency_services.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

emergency_vehicle_route_assignment

This data flow contains details of the emergency vehicle's route and is used to trigger signal preemption along the route for the emergency vehicle. The data flow consists of the following items each of which is described in its own DDE:

route
+ emergency_request
+ vehicle_identity.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

emergency_vehicle_sign_preemption

This data flow is sent from the Manage Emergency Services function to the Manage Traffic function and contains data necessary for an emergency services vehicle to have a message output giving it preemption at an indicator that is a particular dynamic message sign (DMS) or fixed message sign that has a transit priority message that can be displayed. The data flow is sent directly from the emergency vehicle to the sign controller and may consist of either a single character that will enable the sign controller to output the correct message from its list of known messages, or a string of characters for a controller driving a DMS. .

Additional Sizing Assumptions:
SIZE=20;

emergency_vehicle_status_code

This data flow indicates the current status of an emergency vehicle that reflects dynamic assignment of vehicles to incidents. This status will reflect the vehicle's current operating condition and will determine such things as its availability to respond to emergencies, and its current activity in response to an emergency. Status will reflect defined situations such as: Out of service, Assigned to Incident (En Route), At Incident, At Quarters, Disabled (possibly due to its own involvement in an incident), At Station, etc. .

Additional Sizing Assumptions:
SIZE = 16;

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}.

Additional Sizing Assumptions:
SIZE=ERMS_VEHS{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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

emergency_vehicle_suggested_route

This data flow provides a suggested route for a dispatched vehicle that takes into account current traffic conditions, the current location and routes of other responding vehicles, and any special traffic control measures that are currently in effect to speed the response and increase the safety of emergency personnel. This data flow identifies the emergency vehicle and provides turn-by-turn route information .

Additional Sizing Assumptions:
SIZE=16;

emergency_vehicle_tracking_data

This data flow is within the Manage Emergency function and contains the current location of an emergency vehicle, which includes the time at which the location measurement was taken. In addition this data flow contains operational data for the emergency vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ vehicle_location_for_emergency_services
+ emergency_vehicle_operational_data.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=3;

emergency_verification_from_operator

This data flow is used within the Manage Emergency Services function. It contains verification from operators that collected incident data should be forwarded for a response by one or more responding agencies. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:

SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

emissions_archive_data

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

emissions_archive_catalog
+ emissions_data_for_archive.

Additional Sizing Assumptions:
None

emissions_archive_data_request

This data flow from Manage Archive Data function contains the request for data held by the Manage Traffic function. The request for data may include the description of the data required or a time frame over which the requested information may be available. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

enforcement_agency_address

This data flow contains the full postal address (including zip code) of an enforcement agency. This is one of the agency details that is used in the processing of violations reported by other processes in the ITS function. .

Additional Sizing Assumptions:
SIZE=50;

enforcement_agency_allocations

This data item is used within the Manage Emergency Services function and defines the type (or types) or enforcement service required for a particular emergency incident. These may be as follows: none, cancel previous request; police; SWAT; special police (transit authority, port authority, etc.). .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:

SIZE=10;

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. .

Additional Sizing Assumptions:
SIZE=3;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=30;

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. .

Additional Sizing Assumptions:
SIZE=10;

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. .

Additional Sizing Assumptions:
SIZE=30;

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. .

Additional Sizing Assumptions:
SIZE=10;

enforcement_agency_responsibility

This data flow is used within the Manage Emergency Services function and contains the area for which a particular enforcement agency has responsibility in areas such as: commercial vehicles, traffic (general, not tolls), traffic tolls and parking, transit fares (collection and payment), etc. .

Additional Sizing Assumptions:
SIZE=3;

enforcement_data_for_cv

This data store is used within the Manage Emergency Services function and contains details about the enforcement agency to which commercial vehicle violation data must be sent when it is received from processes in the Manage Commercial Vehicles function, and/or the State Department of Motor Vehicles (DMV) office from which vehicle registration data may be obtained. The details comprise the contacts (addresses, telephone numbers, fax numbers, e-mail addresses, etc.) for the enforcement agency and the DMV office, plus the method by which they should be contacted. The contact details will be stored in such a way that the actual violation data can be easily added to them before being sent to the enforcement agency. The data store contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details
+ state_contact_data.

Additional Sizing Assumptions:
SIZE=enforcement_agency_contact
+ enforcement_agency_details
+ 25{state_contact_data};

enforcement_data_for_emissions

This data store is used within the Manage Emergency Services function and contains details about the contacts (addresses, telephone numbers, fax numbers, e-mail addresses, etc.) for enforcement agencies and the method by which they should be contacted, plus details of the contacts at the state Department of Motor Vehicles (DMV) offices from which vehicle registration data can be obtained. The enforcement agencies are those to which about pollution violations should be sent when they are received from the Manage Traffic function. The contact details will be stored in such a way that the actual violation or vehicle license data can be easily added to them before being sent to the enforcement agency or the appropriate DMV. The data store contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details
+ state_contact_data.

Additional Sizing Assumptions:
SIZE=1.5{enforcement_agency_contact
+ enforcement_agency_details}
+ 25{state_contact_data};

enforcement_data_for_fare_payment

This data store is used within the Manage Emergency Services function and contains details about the contacts (addresses, telephone numbers, fax numbers, e-mail addresses, etc.) for an enforcement agency and the method by which it should be contacted. This is the agency to which data should be sent about each transit fare payment violation when it is received from the Provide Electronic Payment Services function. The contact details will be stored in such a way that the actual violation data can be easily added to them before being sent to the enforcement agency. The data store contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details.

Additional Sizing Assumptions:
None

enforcement_data_for_parking

This data store is used within the Manage Emergency Services function and contains details about the enforcement agency to which parking lot violation data must be sent when it is received from processes in the Provide Electronic Payment Services function, and/or the State Department of Motor Vehicles (DMV) office from which vehicle registration data may be obtained. The details comprise the contacts (addresses, telephone numbers, fax numbers, e-mail addresses, etc.) for the enforcement agency and the DMV office, plus the method by which they should be contacted The contact details will be stored in such a way that the actual violation data can be easily added to them before being sent to the enforcement agency. The data store contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details
+ state_contact_data.

Additional Sizing Assumptions:
SIZE=enforcement_agency_contact
+ enforcement_agency_details
+ 25{state_contact_data};

enforcement_data_for_roadside_fare_collection

This data store is used within the Manage Emergency Services function and contains details about the contacts (addresses, telephone numbers, fax numbers, e-mail addresses, etc.) for an enforcement agency and the method by which it should be contacted. This is the agency to which data should be sent about each transit fare violation that takes place at the roadside, i.e. a transit stop, when it is received from the Manage Transit function. The contact details will be stored in such a way that the actual violation data can be easily added to them before being sent to the enforcement agency. The data store contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details.

Additional Sizing Assumptions:
None

enforcement_data_for_TM

This data store is used within the Manage Emergency Services function and contains details about the contacts (addresses, telephone numbers, fax numbers, e-mail addresses, etc.) for enforcement agencies and the method by which they should be contacted, plus details of the contacts at the state Department of Motor Vehicles (DMV) offices from which vehicle registration data can be obtained. The enforcement agencies are those to which about each high occupancy vehicle (hov) lane violations should be sent when they are received from the Manage Traffic

function. The contact details will be stored in such a way that the actual violation or vehicle license data can be easily added to them before being sent to the enforcement agency or the appropriate DMV. The data store contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details
+ state_contact_data.

Additional Sizing Assumptions:
SIZE=1.5{enforcement_agency_contact
+ enforcement_agency_details}
+ 25{state_contact_data};

enforcement_data_for_tolls

This data store is used within the Manage Emergency Services function and contains details about the enforcement agency(ies) to which toll violation data must be sent when it is received from processes in the Provide Electronic Payment Services function, and/or the State Department of Motor Vehicles (DMV) office from which vehicle registration data may be obtained. The details comprise the contacts (addresses, telephone numbers, fax numbers, e-mail addresses, etc.) for the enforcement agency and the DMV office and the method by which they should be contacted. The contact details will be stored in such a way that the actual violation data can be easily added to them before being sent to the enforcement agency. The data store contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details
+ state_contact_data.

Additional Sizing Assumptions:
SIZE=enforcement_agency_contact
+ enforcement_agency_details
+ 25{state_contact_data};

enforcement_data_for_vehicle_fare_collection

This data store is used within the Manage Emergency Services function and contains details about the contacts (addresses, telephone numbers, fax numbers, e-mail addresses, etc.) for an enforcement agency and the method by which it should be contacted. This is the agency to which data should be sent about each transit fare collection violation that takes place on-board a transit vehicle, when it is received from the Manage Transit function. The contact details will be stored in such a way that the actual violation data can be easily added to them before being sent to the enforcement agency. The data store contains the following data items each of which is defined in its own DDE:

enforcement_agency_contact
+ enforcement_agency_details.

Additional Sizing Assumptions:
None

env_and_weather_data

This data flow contains a collection of all environmental and weather data/information that is collected by the Manage Maintenance and Construction function. The data includes environmental sensor data, environmental probe data, weather service information, surface transportation weather information and road condition information. It consists of the following data items each of which is defined in its own DDE:

environmental_sensor_data

+ weather_service_information
+ surface_trans_weather_information
+ env_probe_info.

Additional Sizing Assumptions:
None

env_and_weather_data_for_decision_support

This data flow contains environmental and weather information that will serve as an input to the maintenance decision support function. It consists of the following data item which is defined in its own DDE:

env_and_weather_data.

Additional Sizing Assumptions:
None

env_and_weather_data_for_display

This data flow contains environmental and weather information that will be formatted for display to maintenance and construction center personnel. It consists of the following data item which is defined in its own DDE:

env_and_weather_data.

Additional Sizing Assumptions:
None

env_and_weather_data_for_dissemination

This data flow contains environmental and weather information that will be formatted for dissemination to other agencies. It consists of the following data item which is defined in its own DDE:

env_and_weather_data.

Additional Sizing Assumptions:
None

env_data_collection_parameters

This data flow contains parameters to define how the environmental and weather data is collected and formatted. .

Additional Sizing Assumptions:
SIZE=32;

env_data_processing_parameters

This data flow contains parameters to define how the environmental and weather data is aggregated, filtered, fused, processed or analyzed. .

Additional Sizing Assumptions:
SIZE=32;

env_info_dissemination_parameters

This data flow contains parameters to define how the environmental and road weather data is formatted, aggregated, or filtered for distribution to various organizations outside of the manage maintenance and construction function. .

Additional Sizing Assumptions:
SIZE=32;

env_info_for_decision_support

This data flow contains processed environmental and road weather information for use in maintenance decision support. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions
+ analyzed_env_and_weather_data.

Additional Sizing Assumptions:
None

env_info_for_display

This data flow contains environmental and road weather information that has been formatted for distribution to organizations external to the manage maintenance and construction function. This data flow is formatted for display to the maintenance and construction center personnel. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

env_info_for_maint_needs

This data flow contains processed environmental and road weather information for use in determining maintenance needs. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

env_info_for_mcv_mgmt

This data flow contains processed environmental and road weather information for use in managing the maintenance and construction vehicle fleet. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:

None

env_info_for_road_network

This data flow contains processed environmental and road weather information for use in developing an overview of conditions on the road network. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

env_info_for_scheduling

This data flow contains processed environmental and road weather information for use in scheduling maintenance and construction activities. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

env_info_to_manage_mcv

This DFD flow represents the data flows from Manage Environmental Information to Manage M&C Vehicles and includes environmental information. It consists of the following items each of which is defined in its own DDE:

environmental_sensor_data_on_board
+ environmental_sensor_fault_data_on_board
+ environmental_sensor_status_on_board
+ env_info_for_mcv_mgmt
+ env_info_for_road_network.

Additional Sizing Assumptions:
None

env_info_to_roadway_m_and_c

This DFD flow represents the data flows from Manage Environmental Information to Manage Roadway M&C Activities and includes environmental information. It consists of the following items each of which is defined in its own DDE:

env_info_for_scheduling
+ env_info_for_maint_needs
+ env_and_weather_data_for_decision_support
+ env_info_for_decision_support
+ env_sensor_equip_status_for_m_and_c.

Additional Sizing Assumptions:

None

env_probe_data

This data flow contains environmental conditions (e.g. temperature and precipitation) for a single network segment. The data has been aggregated based upon collection from a number of environmental probes on vehicles. The data also contains metadata describing how and when the data was collected (e.g. does it represent an aggregation of observations over a minute, or over an hour). .

Additional Sizing Assumptions:
SIZE=32;

env_probe_data_from_evs

This data flow provides outputs from an individual environment sensor on an emergency vehicle. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes.

Additional Sizing Assumptions:
None

env_probe_data_from_transit_vehicle

This data flow provides outputs from an individual environment sensor on a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes.

Additional Sizing Assumptions:
None

env_probe_data_from_vehicle

This data flow provides outputs from an individual environment sensor on a vehicle that is being tracked by an information service provider. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes.

Additional Sizing Assumptions:
None

env_probe_info

This data flow contains environmental conditions (e.g. temperature and precipitation) that have been aggregated from individual vehicles acting as probes. The probe information may be provided based upon road segment from which it was collected. The probe information can be collected by transit, emergency services, or from the vehicles

of the traveling public via an information service provider. It consists of the following data items each of which is defined in its own DDE:

env_probe_info_from_isp
+ env_probe_info_from_emergency
+ env_probe_info_from_transit.

Additional Sizing Assumptions:
None

env_probe_info_from_emergency

This data flow contains environmental conditions (e.g. temperature and precipitation) that have been aggregated from individual emergency vehicles acting as probes. The probe information may be provided based upon road segment from which it was collected. It consists of the following data items each of which is defined in its own DDE:

route_segment_total_number
+route_segment_total_number{route_segment_identity
+ env_probe_data}.

Additional Sizing Assumptions:
SIZE=route_segment_total_number+ROADWAY_SEGS{route_segment_identity+env_probe_data};

env_probe_info_from_isp

This data flow contains environmental conditions (e.g. temperature and precipitation) that have been aggregated from individual vehicles acting as probes. The probe information may be provided based upon road segment from which it was collected. It consists of the following data items each of which is defined in its own DDE:

route_segment_total_number
+route_segment_total_number{route_segment_identity
+ env_probe_data}.

Additional Sizing Assumptions:
SIZE=route_segment_total_number+ROADWAY_SEGS{route_segment_identity+env_probe_data};

env_probe_info_from_transit

This data flow contains environmental conditions (e.g. temperature and precipitation) that have been aggregated from individual transit vehicles acting as probes. The probe information may be provided based upon road segment from which it was collected. It consists of the following data items each of which is defined in its own DDE:

route_segment_total_number
+route_segment_total_number{route_segment_identity
+ env_probe_data}.

Additional Sizing Assumptions:
SIZE=route_segment_total_number+ROADWAY_SEGS{route_segment_identity+env_probe_data};

env_sensor_control_by_auto_treat_device

This data flow provides control commands for an environmental sensor being controlled by automated treatment devices at the roadway. The data flow consists of the following data item which is defined in its own DDE:

env_sensor_control_by_roadway_treatment_device.

Additional Sizing Assumptions:
None

env_sensor_control_by_operator

This data flow provides operator initiated control commands for an environmental sensor, which is identified by its station id and sensor identity.

station_id
+ sensor_identity
+ environmental_sensor_control.

Additional Sizing Assumptions:
None

env_sensor_control_by_roadway_treatment_device

This data flow provides control commands for an environmental sensor being controlled by automated treatment devices at the roadway. .

Additional Sizing Assumptions:
SIZE=32;

env_sensor_data_for_auto_treat_device

This data flow provides outputs from an individual environment sensor at the roadway. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes.

Additional Sizing Assumptions:
None

env_sensor_data_for_m_and_c_speed_monitoring

This data flow provides a set of outputs from an individual environment sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output}.

Additional Sizing Assumptions:
None

env_sensor_data_for_speed_enforcement

This data flow provides a set of outputs from an individual environment sensors at the roadway for use in determining whether vehicles are traveling in excess of safe operating conditions given the current environmental conditions. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output}.

Additional Sizing Assumptions:
None

env_sensor_data_for_traffic_speed_monitoring

This data flow provides a set of outputs from an individual environment sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output}.

Additional Sizing Assumptions:
None

env_sensor_equip_status_for_m_and_c

This data flow provides a report to the Manage Maintenance and Construction function of the status of a set of environmental sensors. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_status}.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

environment_sensor_configuration_data

This data flow is used within the Manage Traffic function to provide environmental sensor control commands. .

Additional Sizing Assumptions:
SIZE=64;

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}.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=24;

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 .

Additional Sizing Assumptions:
SIZE=128;

environmental_data_for_incidents

This data flow from the Process Traffic Data function contains information collected by environmental sensors that is to be used to identify and classify possible incidents. It consists of the following item which is defined in its own DDE:

environment_sensor_data.

Additional Sizing Assumptions:
None

environmental_data_for_signage

This data flow from the Process Traffic Data function contains information collected by environmental sensors that can be used to inform travelers about conditions in the area. It consists of the following item which is defined in its own DDE:

environment_sensor_data.

Additional Sizing Assumptions:
None

environmental_sensor_control

This data flow provides control commands for an environmental sensor at the roadway. .

Additional Sizing Assumptions:
SIZE=32;

environmental_sensor_control_for_mcv

This data flow provides control commands for an environmental sensor located on a maintenance and construction vehicle. .

Additional Sizing Assumptions:
SIZE=32;

environmental_sensor_control_for_roadway

This data flow provides control commands for an environmental sensor at the roadway. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ environmental_sensor_control.

Additional Sizing Assumptions:
None

environmental_sensor_control_for_roadway_sensors

This data flow provides control commands for environmental sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environmental_sensor_control}.

Additional Sizing Assumptions:
None

environmental_sensor_control_on_board

This data flow provides control commands for an environmental sensor located on a maintenance and construction vehicle. .

Additional Sizing Assumptions:
SIZE=32;

environmental_sensor_data

This data flow contains the environmental sensor data that has been collected from a wide array of sources. These include roadside environmental sensors and environmental sensors on maintenance and construction vehicles. This data flow consists of the following data items each of which is defined in its own DDE:

environmental_sensor_data_from_mcv
+ environmental_sensor_data_from_roadway_sensors
+ environmental_sensor_data_from_traffic_management
+ fomcm-env_sensor_data
+ fws-env_sensor_data
+ fstws-env_sensor_data.

Additional Sizing Assumptions:
None

environmental_sensor_data_for_roadway

This data flow provides outputs from an individual environment sensor on a maintenance and construction vehicle. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes.

Additional Sizing Assumptions:
None

environmental_sensor_data_from_mcv

This data flow contains environmental sensor data that is collected on-board a maintenance and construction vehicle. The sensor data may come from sensors on-board the vehicle or from sensors at the roadside that have been monitored by the vehicle. It consists of the following data items each of which is defined in its own DDE:

environmental_sensor_data_from_mcv_sensors
+ environmental_sensor_data_from_roadway.

Additional Sizing Assumptions:
None

environmental_sensor_data_from_mcv_sensors

This data flow provides outputs from an individual environment sensor on a maintenance and construction vehicle. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes.

Additional Sizing Assumptions:
None

environmental_sensor_data_from_roadway

This data flow provides outputs from an individual environment sensor at the roadway. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes.

Additional Sizing Assumptions:
None

environmental_sensor_data_from_roadway_sensors

This data flow provides a set of outputs from environment sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}.

Additional Sizing Assumptions:
None

environmental_sensor_data_from_traffic_management

This data flow provides outputs from a set of environment sensors that are monitored by a traffic management function. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}.

Additional Sizing Assumptions:
None

environmental_sensor_data_on_board

This data flow provides outputs from an individual environment sensor on a maintenance and construction vehicle that are sent to the field personnel interface. It consists of the following data items each of which is defined in its own DDE:

sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes.

Additional Sizing Assumptions:
None

environmental_sensor_fault_data_from_mcv

This data flow contains environmental sensor fault data that is obtained on-board a maintenance and construction vehicle. The sensor fault data may come from sensors on-board the vehicle or from sensors at the roadside that have been monitored by the vehicle. It consists of the following data items each of which is defined in its own DDE:

environmental_sensor_fault_data_from_mcv_sensors
+ environmental_sensor_fault_data_from_roadway.

Additional Sizing Assumptions:
None

environmental_sensor_fault_data_from_mcv_sensors

This data flow provides an indication that an environment sensor has developed a fault, (i.e., it is not operating correctly). The fault will have been found by a process that is local to the sensor itself. It consists of the following data items each of which are defined in its own DDE:

station_id
+ sensor_identity
+ sensor_fault_data.

Additional Sizing Assumptions:
None

environmental_sensor_fault_data_from_roadway

This data flow provides an indication that an environment sensor has developed a fault, (i.e., it is not operating correctly). The fault will have been found by a process that is local to the sensor itself. It consists of the following data items each of which are defined in its own DDE:

station_id
+ sensor_identity
+sensor_fault_data.

Additional Sizing Assumptions:
None

environmental_sensor_fault_data_from_roadway_sensors

This data flow provides an indication that an environment sensor has developed a fault, (i.e., it is not operating correctly). The fault will have been found by a process that is local to the sensor itself. It consists of the following data items each of which are defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_fault_data}.

Additional Sizing Assumptions:
None

environmental_sensor_fault_data_on_board

This data flow provides an indication that an environment sensor has developed a fault, (i.e. it is not operating correctly). The fault will have been found by a process that is local to the sensor itself. It consists of the following data items each of which are defined in its own DDE:

sensor_identity
+ sensor_fault_data.

Additional Sizing Assumptions:
None

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+
environment_sensor_fault_data.

Additional Sizing Assumptions:
SIZE=list_size+1{SENSOR_LOCATION+SENSOR_LINK}{station_id+sensor_identity};

environmental_sensor_status_from_mcv

This data flow contains environmental sensor status that is obtained on-board a maintenance and construction vehicle. The sensor status may come from sensors on-board the vehicle or from sensors at the roadside that have been monitored by the vehicle. It consists of the following data items each of which is defined in its own DDE:

environmental_sensor_status_from_mcv_sensors
+ environmental_sensor_status_from_roadway.

Additional Sizing Assumptions:
None

environmental_sensor_status_from_mcv_sensors

This data flow provides a report of the status of an environmental sensor located on a maintenance and construction vehicle. By monitoring this data flow, the receiving process can monitor the health and current status of on-board equipment. It consists of the following data items each of which are defined in its own DDE:

station_id
+ sensor_identity
+ sensor_status.

Additional Sizing Assumptions:
None

environmental_sensor_status_from_roadway

This data flow provides a report of 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 data items each of which are defined in its own DDE:

station_id
+ sensor_identity
+ sensor_status.

Additional Sizing Assumptions:
None

environmental_sensor_status_from_roadway_sensors

This data flow provides a report of the status of a set of environmental sensor. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which are defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_device_status}.

Additional Sizing Assumptions:
None

environmental_sensor_status_on_board

This data flow provides a report of the status of an environmental sensor located on a maintenance and construction vehicle. This data flow is sent to the field personnel interface. It consists of the following data items each of which is defined in its own DDE:

sensor_identity
+ sensor_status.

Additional Sizing Assumptions:
None

equipment_availability

This data flow contains the types, quantities, and status of maintenance and construction equipment available at the storage facility and in the asset inventory. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{m_and_c_equipment_type
+ m_and_c_equipment_quantity
+ m_and_c_equipment_status
+ date
+ time}.

Additional Sizing Assumptions:
None

equipment_status

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

Additional Sizing Assumptions:
SIZE=32;

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 preemption requests needed by emergency vehicles. The data flow consists of the following data items each of which is defined in its own DDE:

em_to_device_control
+ em_data_for_incident
+ traffic_probe_info_from_evs_for_traffic
+ dre_data_for_incident.

Additional Sizing Assumptions:
None

error_handling

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

Additional Sizing Assumptions:
SIZE=32;

evacuation_area

This data flow contains the geographic area that is to be evacuated. .

Additional Sizing Assumptions:
SIZE=48;

evacuation_control_response_from_other_traffic_management

This data flow is sent to Traffic Management from Other Traffic Management. It contains a response from another traffic management center on a control strategy that has been implemented to support a local evacuation effort. The data flow consists of the following data items each of which is defined in its own DDE:

traffic_control_response.

Additional Sizing Assumptions:
SIZE= 0;

evacuation_data_for_archive

This flow contains the evacuation plans that will be used and sends them to the archive of data. The data flow consists of the following data items which are defined in their own DDE:

emergency_evacuation_plan.

Additional Sizing Assumptions:
None

evacuation_data_for_communications

This flow contains information regarding evacuation that will be communicated from emergency management to other operation centers and ISPs. It is intended to carry information that is relevant for public distribution. The data flow consists of the following data items which are defined in their own DDE:

evacuation_rail_schedule
+ evacuation_transit_schedule
+ evacuation_transit_routes
+ evacuation_transit_fares
+ shelter_information
+ evacuation_area
+ evacuation_schedule.

Additional Sizing Assumptions:
None

evacuation_data_for_isp

This flow contains information regarding evacuation that will be communicated from emergency management to the ISP. It is intended to carry information that is relevant for public distribution. The data flow consists of the following data items which are defined in their own DDE:

evacuation_rail_schedule
+ evacuation_transit_schedule
+ evacuation_transit_routes
+ evacuation_transit_fares
+ shelter_information
+ evacuation_area
+ evacuation_schedule.

Additional Sizing Assumptions:
None

evacuation_information_for_m_and_c

This flow contains information regarding the evacuation for maintenance and construction. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule.

Additional Sizing Assumptions:
None

evacuation_information_for_personal_access

This data flow contains evacuation information to be disseminated to the traveler during a request for personal information. This data flow consists of the following data items each of which is defined in its own DDE:

evacuation_transit_schedule
+ evacuation_transit_routes
+ evacuation_transit_fares
+ roadway_detours_and_closures
+ evacuation_area
+ evacuation_schedule
+ shelter_information.

Additional Sizing Assumptions:
None

evacuation_information_for_traffic_management

This flow contains information regarding the evacuation for traffic management. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule.

Additional Sizing Assumptions:
None

evacuation_information_for_transit_management

This flow contains information regarding the evacuation for transit management. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule.

Additional Sizing Assumptions:
None

evacuation_information_request

This data flow represents a request from a traveler for information regarding an evacuation. .

Additional Sizing Assumptions:
SIZE=48;

evacuation_information_request_for_personal_access

This data flow is used within the Provide Driver and Traveler Services function and contains details of the request for evacuation information by a traveler from a personal device. It consists of the following item which is defined in its own DDE:

evacuation_information_request.

Additional Sizing Assumptions:
None

evacuation_m_and_c_available_resources

This data flow contains the resources maintenance and construction management has available for use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

m_and_c_resources.

Additional Sizing Assumptions:
None

evacuation_m_and_c_work_plan

This data flow contains the modified work plan that might be used by maintenance and construction during potential evacuation situations. It contains a list of current work zones and other areas in the transportation system in which work could stop in order to support the evacuation. It consists of the following data item which is defined in its own DDE:

m_and_c_work_plans.

Additional Sizing Assumptions:
None

evacuation_oem_available_resources

This data flow contains the available resources for evacuation from another emergency management center. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_vehicle_availability.

Additional Sizing Assumptions:
SIZE= 0;

evacuation_plan_coordination_from_m_and_c

This data flow is used is used to coordinate evacuation plans with maintenance and construction management. It contains a resulting evacuation plan that maintenance can use based on modifications to the preplanned evacuation plan and information available about the current network conditions. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_evacuation_plan.

Additional Sizing Assumptions:
None

evacuation_plan_coordination_from_traffic

This data flow is used is used to coordinate evacuation plans with traffic management. It contains a resulting evacuation plan that traffic management can use based on modifications to the preplanned evacuation plan and information available about the current network conditions. The data flow consists of the following data item which is defined in its own DDE:

traffic_evacuation_plan.

Additional Sizing Assumptions:
None

evacuation_plan_coordination_from_transit

This data flow is used is used to coordinate evacuation plans with transit management. It contains a resulting evacuation plan that transit management can use based on modifications to the preplanned evacuation plan and information available about the current network conditions. The data flow consists of the following data item which is defined in its own DDE:

transit_evacuation_plan.

Additional Sizing Assumptions:
None

evacuation_plan_coordination_to_m_and_c

This data flow is used to coordinate evacuation plans with maintenance and construction. It contains information regarding the nature of the disaster or incident that has required an evacuation, and the preplanned evacuation plan for maintenance. Given this information, maintenance can than update and provide a plan that it will use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

emergency_evacuation_data
+ m_and_c_preplanned_evacuation_plan
+ evacuation_status_report
+ evacuation_transportation_system_status.

Additional Sizing Assumptions:
None

evacuation_plan_coordination_to_traffic

This data flow is used to coordinate evacuation plans with traffic management. It contains information regarding the nature of the disaster or incident that has required an evacuation, and the preplanned evacuation plan for traffic. Given this information, traffic can than update and provide a plan that it will use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

emergency_evacuation_data
+ traffic_preplanned_evacuation_plan
+ evacuation_status_report
+ evacuation_transportation_system_status.

Additional Sizing Assumptions:
None

evacuation_plan_coordination_to_transit

This data flow is used to coordinate evacuation plans with transit management. It contains information regarding the nature of the disaster or incident that has required an evacuation, and the preplanned evacuation plan for transit. Given this information, transit can than update and provide a plan that it will use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

emergency_evacuation_data
+ transit_preplanned_evacuation_plan
+ evacuation_status_report
+ evacuation_transportation_system_status.

Additional Sizing Assumptions:
None

evacuation_plans

This data store is used within the emergency management function for evacuation coordination. It contains preplanned evacuation plans. In the event that an evacuation is ordered, this data is used in generating evacuation routes, plans, etc. A plan stored here, is selected that best fits the current evacuation order. It is then updated by coordinating with transportation agencies, jurisdictions, etc. to create an evacuation plan for implementation. The data store consists of the following data item which is defined in its own DDE:

preplanned_evacuation_plan.

Additional Sizing Assumptions:
None

evacuation_rail_available_resources

This data flow contains the available resources for evacuation from rail operations. The data flow consists of the following data items each of which is defined in its own DDE:

rail_available_resources.

Additional Sizing Assumptions:
SIZE= 0;

evacuation_rail_schedule

This data flow contains the available schedule for evacuation from rail operations. It consists of the following data items each of which is defined in its own DDE:

fro-train_schedules.

Additional Sizing Assumptions:
None

evacuation_schedule

This data flow contains the evacuation schedule. .

Additional Sizing Assumptions:
SIZE=48;

evacuation_status_for_disaster_response

This flow contains the evacuation plans and status of the evacuation. It is used by disaster response to monitor the evacuation status and assists in improving the disaster response and recovery plan. The data flow consists of the following data items which are defined in their own DDE:

emergency_evacuation_plan
+ evacuation_status_report.

Additional Sizing Assumptions:
None

evacuation_status_report

This flow contains the set of the evacuation status reports from traffic management, transit management, maintenance and construction, other emergency management, etc. This data is forwarded so that the evacuation plan can be improved as needed. The data flow consists of the following data items which are defined in their own DDE:

transit_evacuation_status
+ traffic_evacuation_status
+ foem-evacuation_status.

Additional Sizing Assumptions:
None

evacuation_toll_change_request

This flow represents a request to initiate a change in tolls to support an evacuation. .

Additional Sizing Assumptions:
SIZE=48;

evacuation_toll_change_response

This flow represents the response that a change in tolls had or has not been accomplished by the toll administration to support an evacuation. .

Additional Sizing Assumptions:
SIZE=64;

evacuation_traffic_available_resources

This data flow contains the resources traffic management has available for use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

traffic_resources_available.

Additional Sizing Assumptions:
None

evacuation_traffic_control_request_for_other_traffic_management

This data flow is sent from Traffic Management to Other Traffic Management. It contains a request for the other traffic management center to implement a control strategy to support the local evacuation effort. The data flow consists of the following data items which are defined in their own DDE:

traffic_control_request.

Additional Sizing Assumptions:
None

evacuation_traffic_control_request_from_other_traffic_management

This data flow is sent to Traffic Management from Other Traffic Management. It contains a request for traffic management center to implement a control strategy to support a non-local evacuation effort. The data flow consists of the following data items which are defined in their own DDE:

traffic_control_request.

Additional Sizing Assumptions:
None

evacuation_traffic_control_response_for_other_traffic_management

This data flow is sent from Traffic Management to Other Traffic Management. It contains a response to other traffic management center on a control strategy that has been implemented to support a non-local evacuation effort. The data flow consists of the following data items each of which is defined in its own DDE:

traffic_control_response.

Additional Sizing Assumptions:
SIZE= 0;

evacuation_traffic_data_for_other_traffic_management

This data flow is sent from Traffic Management to Other Traffic Management. It contains information regarding a current evacuation and a request for the other traffic management center to implement a control strategy to support the local evacuation effort. It also contains a response to a request from the other traffic management center for supporting a non-local evacuation effort. It consists of the following data items each of which is defined in its own DDE:

evacuation_traffic_information_for_other_traffic_management
+ evacuation_traffic_control_request_for_other_traffic_management
+ evacuation_traffic_control_response_for_other_traffic_management.

Additional Sizing Assumptions:
SIZE= 0;

evacuation_traffic_data_from_other_traffic_management

This data flow is sent to Traffic Management from Other Traffic Management. It contains information regarding a current evacuation and a request for the local traffic management center to implement a control strategy to support a non-local evacuation effort. It also contains a response to a request from the local traffic management center for supporting a local evacuation effort. It consists of the following data items each of which is defined in its own DDE:

evacuation_traffic_information_from_other_traffic_management
+ evacuation_traffic_control_request_from_other_traffic_management
+ evacuation_control_response_from_other_traffic_management.

Additional Sizing Assumptions:
SIZE= 0;

evacuation_traffic_information_for_other_traffic_management

This data flow is sent from Traffic Management to Other Traffic Management. It contains information regarding a current local evacuation. It consists of the following data items each of which is defined in its own DDE:

emergency_evacuation_data
+ predefined_traffic_evacuation_plan.

Additional Sizing Assumptions:
SIZE= 0;

evacuation_traffic_information_from_other_traffic_management

This data flow is sent from Other Traffic Management to Traffic Management. It contains information regarding a current non-local evacuation. It consists of the following data items each of which is defined in its own DDE:

emergency_evacuation_data
+ predefined_traffic_evacuation_plan.

Additional Sizing Assumptions:
SIZE= 0;

evacuation_transit_available_resources

This data flow contains the resources transit management has available for use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

transit_resources_available.

Additional Sizing Assumptions:
None

evacuation_transit_fares

This data flow contains the fares transit management has available for use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

transit_fare.

Additional Sizing Assumptions:
None

evacuation_transit_routes

This data flow contains the routes transit management has available for use to support the evacuation. It consists of the following data items each of which is defined in its own DDE:

transit_route.

Additional Sizing Assumptions:
None

evacuation_transit_schedule

This data flow contains the schedule transit management has available for use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

transit_schedule_data.

Additional Sizing Assumptions:
None

evacuation_transit_schedule_information_for_traffic

This data flow contains information on transit service or schedule changes that have been put into effect in response to evacuations. The data flow consists of the following data items which are defined in their own DDE:

evacuation_transit_schedule.

Additional Sizing Assumptions:
None

evacuation_transportation_system_status

This data flow consists of a report of the current status of the transportation system. The data contained in the flow is used to assist in coordinating evacuation activities. The data flow consists of the following data items which are defined in their own DDE:

rail_system_status_for_evacuation
+ m_and_c_view_of_road_network_for_evacuation
+ network_status_from_traffic_for_evacuation
+ transit_status_for_evacuation.

Additional Sizing Assumptions:
None

evacuation_transportation_system_status_for_isp

This data flow consists of a report of the current status of the transportation system. This data is reported to information service providers as an ongoing status during an evacuation. The data flow consists of the following data item which is defined in its own DDE:

evacuation_transportation_system_status.

Additional Sizing Assumptions:
None

evacuation_transportation_system_status_for_traffic

This data flow consists of a report of the current status of the transportation system. This data is reported to traffic management as an ongoing status during an evacuation. The data flow consists of the following data item which is defined in its own DDE:

evacuation_transportation_system_status.

Additional Sizing Assumptions:
None

evacuation_transportation_system_status_for_transit

This data flow consists of a report of the current status of the transportation system. This data is reported to transit management as an ongoing status during an evacuation. The data flow consists of the following data item which is defined in its own DDE:

evacuation_transportation_system_status.

Additional Sizing Assumptions:
None

evacuation_traveler_information_for_rts

This data flow contains evacuation information to be disseminated to the traveler at a kiosk and other remote traveler services. This data flow consists of the following data items each of which is defined in its own DDE:

evacuation_transit_schedule
+ evacuation_transit_routes
+ evacuation_transit_fares
+ roadway_detours_and_closures
+ evacuation_area
+ evacuation_schedule
+ shelter_information.

Additional Sizing Assumptions:
None

evacuation_traveler_information_for_vehicle

This data flow contains evacuation information to be disseminated to the traveler in a vehicle. This data flow consists of the following data items each of which is defined in its own DDE:

evacuation_transit_schedule
+ evacuation_transit_routes
+ evacuation_transit_fares
+ roadway_detours_and_closures
+ evacuation_area
+ evacuation_schedule
+ shelter_information.

Additional Sizing Assumptions:
None

evacuation_traveler_information_request_for_rts

This data flow is used within the Provide Remote Traveler Services function and contains details of the request for evacuation information by a traveler from a personal device. It consists of the following item which is defined in its own DDE:

evacuation_information_request.

Additional Sizing Assumptions:
None

evacuation_traveler_information_request_for_vehicle

This data flow is used within the Vehicle function and contains details of the request for evacuation information by a traveler from a personal device. It consists of the following item which is defined in its own DDE:

evacuation_information_request.

Additional Sizing Assumptions:
None

evacuation_trip_planning_data

This data flow contains evacuation information to be disseminated to the traveler for trip planning. This data flow consists of the following data items each of which is defined in its own DDE:

evacuation_data_for_isp
+ transit_evacuation_data_for_isp
+ roadway_detours_and_closures_for_isp.

Additional Sizing Assumptions:
None

event_attendance_expected

This data flow is used within the Manage Traffic function to define the number of people expected to attend an event that has been registered as a possible incident by an Event Promoter. .

Additional Sizing Assumptions:
SIZE=4;

event_duration

This data flow is used within the Manage Traffic function to define the duration of an event that has been registered as a possible incident by an Event Promoter. .

Additional Sizing Assumptions:
SIZE=4;

event_information_511_request

This data flow is used within the Provide Driver and Traveler Services function to transfer requests for event information from a 511 traveler information system to the event information collection facility. The data flow consists of the following data items each of which is defined in its own DDE:

event_information_request
+ region_identity

+ information_request_id.

Additional Sizing Assumptions:
None

event_information_advisory_data

This data flow is used within the Provide Driver and Traveler Services function to provide event information to drivers and travelers in vehicles. .

Additional Sizing Assumptions:
SIZE=16;

event_information_advisory_requests

This data flow is used within the Provide Driver and Traveler Services function to request that event information be output to a driver or a traveler in a vehicle. .

Additional Sizing Assumptions:
SIZE=1;

event_information_advisory_requests_for_archive

This data flow is used within the Provide Driver and Traveler Services function to provide data to the archive about the types of event information requested by a driver or a traveler in a vehicle. The data flow consists of the following data item which is defined in its own DDE:

event_information_advisory_requests.

Additional Sizing Assumptions:
None

event_information_for_511

This data flow is used within the Provide Driver and Traveler Services function and contains details of region-specific event information to be used by a 511 traveler information system. It consists of the following data items each of which is defined in its own DDE:

event_information_for_travelers
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
None

event_information_for_travelers

This data flow contains information that might be of interest to travelers planning trips, particularly information on special events. .

Additional Sizing Assumptions:
SIZE=1024;

event_information_request

This data flow is sent by the Provide Driver and Traveler Services function to request updated information about events. .

Additional Sizing Assumptions:
SIZE=32;

event_information_requests_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the archive about the types of event information requested by a traveler. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_event_information_request_for_archive
+ traveler_personal_event_information_request_for_archive
+ event_information_advisory_requests_for_archive.

Additional Sizing Assumptions:
None

event_location

This data flow is used within the Manage Traffic function to define the location of an event that has been registered as a possible incident by an Event Promoter.

location_identity.

Additional Sizing Assumptions:
None

event_name

This data flow is used within the Manage Traffic function to define the name of an event that has been registered as a possible incident by an Event Promoter. .

Additional Sizing Assumptions:
SIZE=64;

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. .
Additional Sizing Assumptions:
SIZE = 128;

event_start_time

This data flow is used within the Manage Traffic function to define the start time of an event that has been registered as a possible incident by an Event Promoter. .

Additional Sizing Assumptions:
SIZE=4;

existing_sensor_static_data

This data flow is used within the Manage Traffic function. It contains a copy of the current contents of the store of static data used in the processing of data received from traffic sensors. It consists of the following data item which is defined in its own DDE:

static_data_for_sensor_processing.

Additional Sizing Assumptions:
None

f_other_rw_dms_auto_treat_data_from_roadway

This data flow from an automated road treatment system causes a roadway information device such as a dynamic message sign (DMS) to display an indication of the status of automated road treatment (e.g. on-going, just completed, about to begin). The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text+ lane_dms_controls}.

Additional Sizing Assumptions:
None

f_other_rw_dms_barrier_activated_from_roadway

This data flow from an automated barrier system causes a roadway information device such as a dynamic message sign (DMS) to display an indication of the status of the barrier system (e.g. open, closed). The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text+ lane_dms_controls}.

Additional Sizing Assumptions:
None

f_other_rw_dms_safeguard_activated_from_roadway

This data flow from an automated safeguard system (e.g. blast shields, exhaust fans) causes a roadway information device such as a dynamic message sign (DMS) to display an indication of the status of the safeguard system (e.g. ongoing, just completed, about to begin). The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}.

Additional Sizing Assumptions:
None

f_other_rw_env_sensor_control_by_auto_treat_device

This data flow provides control commands for a roadside environmental sensor being controlled by automated treatment devices at the roadway. The data flow consists of the following data item which is defined in its own DDE:

env_sensor_control_by_roadway_treatment_device.

Additional Sizing Assumptions:
None

f_other_rw_env_sensor_data_for_auto_treat_device

This data flow provides data from an individual environmental sensor into an automated treatment device at the roadway. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes.

Additional Sizing Assumptions:
None

f_other_rw_env_sensor_data_to_dms

This data flow contains information from the output of an environment sensor for direct display on a roadway information device (e.g. a dynamic message sign (DMS)). It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{station_id + sensor_identity + environment_sensor_output}.

Additional Sizing Assumptions:
None

f_other_rw_fc_control_to_fc

This data flow is received from another highway roadside device (e.g., another ramp meter controller) and contains control information for a highway roadside indicator. It can contain the actual data from which instructions to the driver and traveler can be produced by indicators at the roadside on highways in the geographic and/or jurisdictional area(s) served by the function. It is used for sharing of control between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

indicator_crossing_control_data_for_highways
+ indicator_ramp_control_data.

Additional Sizing Assumptions:
None

f_other_rw_fc_control_to_traffic_sensor

This data flow is sent from a highway roadside indicator (e.g., ramp meter controller) to a traffic sensor device on the roadside and contains sensor control commands. .

Additional Sizing Assumptions:
SIZE=8;

f_other_rw_fc_status_to_fc

This data flow is sent from other highway roadside devices (e.g. another ramp meter controller) and contains status and fault indications for a highway roadside indicator. The data flow can contain the actual state of operation of the highway roadside indicators. It is used for coordination between peer roadside indicators or for information transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ indicator_response_state + indicator_fault}.

Additional Sizing Assumptions:
None

f_other_rw_fc_to_fc

This data flow is received from other highway roadside devices (e.g. another ramp meter controller) and contains status, fault indications, and control information for a highway roadside indicator. It is used for coordination between peer roadside indicators or for information transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

f_other_rw_fc_status_to_fc
+ f_other_rw_fc_control_to_fc.

Additional Sizing Assumptions:
None

f_other_rw_ic_control_to_ic

This data flow is received from another roadside device (another intersection controller) and contains control information for a roadside indicator. It can contain the actual data from which instructions to the driver and traveler can be produced by indicators at the roadside on roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It is used for sharing of control between devices functioning in a hierarchical arrangement. It 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.

Additional Sizing Assumptions:
None

f_other_rw_ic_control_to_traffic_sensor

This data flow is sent from a roadside indicator (e.g., intersection controller) to a traffic sensor device on the roadside and contains sensor control commands. .

Additional Sizing Assumptions:
SIZE=8;

f_other_rw_ic_status_to_ic

This data flow is sent from other roadside devices (another intersection controller) and contains status and fault indications for a roadside indicator. The data flow can contain the actual state of operation of the roadside indicators. It is used for coordination between peer roadside indicators or for information transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ indicator_response_state + indicator_fault}.

Additional Sizing Assumptions:

None

f_other_rw_ic_to_ic

This data flow is received from another roadside device (another intersection controller) and contains status, fault, and control information for a roadside indicator. It is used for coordination between peer roadside indicators or for information transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

f_other_rw_ic_status_to_ic
+ f_other_rw_ic_control_to_ic.

Additional Sizing Assumptions:
None

f_other_rw_individual_vehicle_speed_to_dms

This data flow contains an indication of an individual vehicle's speed which can be displayed on a dynamic message sign (DMS). This data flow is sent from one roadside device (the speed sensor) to another roadside device (the DMS). .

Additional Sizing Assumptions:
SIZE=8;

f_other_rw_roadway_info_data

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by roadway information devices such as dynamic message signs (DMS). This data flow represents the roadway information displays created by other roadway sensors (e.g. environmental or speed) or devices (e.g. automated road treatment, barrier systems, safeguard systems). It consists of data the following data items each of which is composed of its own DDE:

f_other_rw_dms_auto_treat_data_from_roadway
+ f_other_rw_dms_barrier_activated_from_roadway
+ f_other_rw_dms_safeguard_activated_from_roadway
+ f_other_rw_env_sensor_data_to_dms
+ f_other_rw_speed_warning_to_dms
+ f_other_rw_individual_vehicle_speed_to_dms.

Additional Sizing Assumptions:
None

f_other_rw_sensor_to_fc

This data flow is sent from a traffic sensor device on the roadside to a highway roadside indicator and contains sensor status, fault data, and vehicle detection data. It consists of the following data items each of which is defined in its own DDE:

f_other_rw_traffic_sensor_data_to_fc
+ f_other_rw_traffic_sensor_status_to_fc.

Additional Sizing Assumptions:
None

f_other_rw_sensor_to_ic

This data flow is sent from a traffic sensor device on the roadside to a roadside indicator and contains sensor status, fault data, and vehicle detection data. It consists of the following data items each of which is defined in its own DDE:

f_other_rw_traffic_sensor_data_to_ic
+ f_other_rw_traffic_sensor_status_to_ic.

Additional Sizing Assumptions:
None

f_other_rw_speed_warning_to_dms

This data flow contains a speed warning that can be displayed to a driver via a dynamic message sign (DMS). The warning may indicate that the vehicle is exceeding the speed limit or it may indicate how many miles per hour over the speed limit was measured. The data flow is sent from one roadside device (the speed sensor) to another roadside device (the dynamic message sign). .

Additional Sizing Assumptions:
SIZE=8;

f_other_rw_traffic_sensor_data_to_fc

This data flow is sent from a traffic sensor device on the roadside to a highway roadside indicator and contains vehicle detection data; i.e., data that provides information about vehicles moving on the highway network. It consists of the following data item which is defined in its own DDE:

vehicle_detection_data.

Additional Sizing Assumptions:
None

f_other_rw_traffic_sensor_data_to_ic

This data flow is sent from a traffic sensor device on the roadside to a roadside indicator (intersection controller) and contains vehicle detection data; i.e., data that provides information about vehicles moving on the road network. It consists of the following data item which is defined in its own DDE:

vehicle_detection_data.

Additional Sizing Assumptions:
None

f_other_rw_traffic_sensor_status_to_fc

This data flow is sent from a traffic sensor device on the roadside to a highway roadside device (e.g. ramp meter controller) and contains status and fault indications for that sensor. It consists of the following data item which is defined in its own DDE:

sensor_status.

Additional Sizing Assumptions:
None

f_other_rw_traffic_sensor_status_to_ic

This data flow is sent from a traffic sensor device on the roadside by a roadside indicator and contains status and fault indications for that sensor. It consists of the following data item which is defined in its own DDE:

sensor_status.

Additional Sizing Assumptions:
None

f_other_rw_work_zone_intrusion_detection

This data flow is sent to an intrusion alert device and contains a time stamped indication from an intrusion detection sensor that an intrusion into the perimeter of the work zone has occurred. It consists of the following data item which is defined in its own DDE:

work_zone_intrusion_detection.

Additional Sizing Assumptions:
None

faas-alerts_and_advisories_for_cvo

This data flow is sent from the Alerting and Advisory System terminator to provide information to the manage commercial vehicle function concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency. This could include alerts or advisory information provided by the Emergency Alert System. This data could include data to help the Manage Commercial Vehicles function appropriately plan activities and prepare for a response to a disaster or emergency situation. .

Additional Sizing Assumptions:
SIZE=256;

faas-alerts_and_advisories_for_freight

This data flow is sent from the Alerting and Advisory System terminator to provide information to the manage commercial vehicle function concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency. This could include alerts or advisory information provided by the Emergency Alert System. This data could include data to help the Manage Commercial Vehicles function appropriately plan activities and prepare for a response to a disaster or emergency situation. .

Additional Sizing Assumptions:
SIZE=256;

faas-alerts_and_advisories_for_maint

This data flow is sent from the Alerting and Advisory System terminator to provide information to the Manage Maintenance and Construction function concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency. This could include alerts or advisory information provided by the Emergency Alert System. This data could include data to help the Manage M&C function appropriately plan activities and prepare for a response to a disaster or emergency situation. .

Additional Sizing Assumptions:
SIZE=256;

faas-alerts_and_advisories_for_threat_analysis

This data flow is sent from the Alerting and Advisory Systems and contains generated alerts and advisories to be analyzed from surveillance and sensor equipment in secure areas and is intended to be used for further threat analysis. .

Additional Sizing Assumptions:
SIZE=48;

faas-alerts_and_advisories_for_traffic

This data flow is sent from the Alerting and Advisory System terminator to provide information to traffic management concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency. This could include alerts or advisory information provided by the Emergency Alert System. This data could include data to help the Manage Traffic function appropriately plan activities and prepare for a response to a disaster or emergency situation. .

Additional Sizing Assumptions:
SIZE=256;

faas-alerts_and_advisories_for_transit

This data flow is sent from the Alerting and Advisory System terminator to provide information to transit management concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency. This could include alerts or advisory information provided by the Emergency Alert System. This data could include data to help the Manage Transit function appropriately plan activities and prepare for a response to a disaster or emergency situation. .

Additional Sizing Assumptions:
SIZE=256;

faas-confirm_image_match

This data flow is sent from the Alert and Advisory System to indicate whether analysis of a video image obtained from a surveillance camera was successful or not. The Alert and Advisory System confirms that the identifier of a potential match has matched the input image. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

faas-image_search_data

This data flow is sent from the Alert and Advisory System to provide a database of known images (criminal elements) to search against when a video image is received for analysis from another process. .

Additional Sizing Assumptions:
SIZE=1024;

faas-threat_support_data

This data flow is sent from Alerting and Advisory Systems and contains information to assist in identifying possible threats. .

Additional Sizing Assumptions:

SIZE=48;

faas-wide_area_alert_notifications_and_advisories

This data flow is sent from the Alert and Advisory System to provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction. .

Additional Sizing Assumptions:
SIZE=32;

fada-archive_administration_requests

This data flow contains requests and inputs from the archive data administrator terminator to request that data be archived and the parameters needed to control the import of the data. This data flow also contains the security permission data necessary to ensure the archive data is secure. This data flow contains the requests sent to the Manage Archive function to administer the archive database. .

Additional Sizing Assumptions:
SIZE=128;

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. .

Additional Sizing Assumptions:
SIZE=1024;

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 archive. .

Additional Sizing Assumptions:
SIZE=1024;

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. .

Additional Sizing Assumptions:
SIZE=255;

fam-asset_archive_data

This data flow from Asset Management to the Manage Archived Data function contains transportation asset data to be archived along with meta data describing the information. This data can include a catalog of the data held by the function. The data contains information about assets including pavements, bridges, and all other infrastructure in the transportation network. It can also cover support assets (support equipment and systems, software, etc.). This data flow contains the following items each of which is defined in its own DDE:

asset_archive_catalog
+ asset_data_for_archive.

Additional Sizing Assumptions:
None

fam-asset_damage

This data flow is sent from the Asset Management terminator to the Manage Maintenance and Construction function. It provides information regarding damage to the transportation infrastructure - primarily non-ITS assets - such as bridges, roadways, or tunnels. This data may be collected from eyewitness reports, aerial surveillance, field reports, inspections, tests, and analyses. .

Additional Sizing Assumptions:
SIZE=64;

fam-asset_inventory

This data flow is sent from the Asset Management terminator to the Manage Maintenance and Construction function. It provides information on the transportation infrastructure, including the locations and maintenance condition of each asset, vendor/contractor information, materials information, etc. .

Additional Sizing Assumptions:
SIZE=2048;

fam-asset_maint_and_repair_needs

This data flow is sent from the Asset Management terminator to the Manage Maintenance and Construction function. It provides input on infrastructure repair requirements based on schedules, infrastructure conditions data, etc. .

Additional Sizing Assumptions:
SIZE=64;

fam-asset_restrictions

This data flow is sent from the Asset Management terminator to the Manage Maintenance and Construction function. It provides information regarding restrictions on transportation asset usage based on infrastructure design, surveys, tests, or analyses. This could include height, width, weight, and special restrictions for bridges; both permanent restrictions, and temporary restrictions due to current maintenance and construction activities are included. .

Additional Sizing Assumptions:
SIZE=64;

fare_collection_roadside_violation_information

This data is used by the Manage Transit function to send data about a violator of the transit fare collection processes at the roadside, i.e. a transit stop, to the Manage Emergency Services function. This data flow will contain a digitized video image of the traveler who is trying to violate the fare collection process at the roadside. It is assumed that this digitized data will include other data such as date and time, plus camera identity from which the roadside (transit stop) location can be determined. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_route_segment_number
+ traveler_roadside_image
+ traveler_roadside_tag_identity.

Additional Sizing Assumptions:
None

fare_collection_vehicle_violation_information

This data is used by the Manage Transit function to send data about a violator of the transit fare collection processes on-board the vehicle to the Manage Emergency Services function. This data flow will contain a digitized video image of the traveler who is trying to violate the fare collection process on-board a vehicle. It is assumed that this digitized data will include other data such as date and time, plus camera identity from which the transit vehicle identity can be determined. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_route_segment_number
+ traveler_vehicle_image
+ traveler_vehicle_tag_identity.

Additional Sizing Assumptions:
None

fare_payment_violator_data

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

credit_identity
+ transit_fare.

Additional Sizing Assumptions:
None

fare_reconciliation

This data flow is sent to other transit management centers by the Manage Transit function and contains data that will allow the use of a common media for fare payment by transit passengers traveling on an adjacent transit agency system. .

Additional Sizing Assumptions:
SIZE=200;

fare_violation_information

This data is used by the Provide Electronic Payment Services functions to send data about a violator of the transit fare collection processes to the Manage Emergency Services function. This data will contain a digitized video image of the traveler trying to violate the transit fare collection process, plus information about the transit fare and the vehicle or roadside location from which payment was being attempted. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ transit_fare
+ transit_route_number
+ transit_route_segment_number
+ transit_route_use_time
+ traveler_category
+ traveler_roadside_image

+ traveler_vehicle_image
+ traveler_identity.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

fbcv-brake_condition

This data flow is used within the Manage Commercial Vehicle function. It contains analog data from on-board commercial vehicle sensors from which the current condition of the vehicle's brakes can be determined. .

Additional Sizing Assumptions:

SIZE=4;

fbcv-distance_traveled

This data flow is used within the Manage Commercial Vehicle function. It contains data from on-board commercial vehicle sensors from which the total distance traveled by the vehicle (miles) can be determined. .

Additional Sizing Assumptions:
SIZE=8;

fbcv-driver_safety_status

This data flow contains data which on-board commercial vehicle sensors can use to determine the following:

driver_state - the ability of the driver to control the vehicle, negative factors being such things as alcohol on the breath, too many mistakes, etc.
injuries - any detectable problems with the vehicle occupants, e.g. sudden change in heart rate, pulse, breathing, etc. .

Additional Sizing Assumptions:
SIZE=32;

fbcv-driver_status

This data flow is used within the Manage Commercial Vehicle function. It contains analog data from on-board commercial vehicle sensors from which the current driver status can be determined. .

Additional Sizing Assumptions:
SIZE=32;

fbcv-vehicle_characteristics

This data flow represents vehicle characteristics that are sensed at a commercial vehicle roadside checking facility. This data may be acquired by sensors from the vehicle either electronically, optically, or manually and will include data such as size, number of axles, use of trailer, etc. .

Additional Sizing Assumptions:
SIZE=6;

fbcv-vehicle_identification

This data flow represents identification characteristics that are sensed at a commercial vehicle roadside checking facility. This data may be acquired by optical sensors or manually and will include data such as license plate number, US DOT number, ICC number, bar code, etc. .

Additional Sizing Assumptions:
SIZE=8;

fbcv-vehicle_identity

This data flow contains the data that uniquely identifies a commercial vehicle. It is setup by manufacture during the construction of the vehicle and cannot be changed by the driver. The data flow consists of the following data item each of which is defined in its own DDE:

vehicle_identity.

Additional Sizing Assumptions:

None

fbcv-vehicle_safety_status

This data flow is used within the Manage Commercial Vehicle function. It contains analog data from on-board commercial vehicle sensors from which the extent of a vehicle's collision damage can be determined. .

Additional Sizing Assumptions:
SIZE=32;

fbcv-vehicle_security_status

This data flow contains analog data from the on-board commercial vehicle sensors from which a breach or tamper event can be determined. .

Additional Sizing Assumptions:
SIZE=32;

fbcv-weight

This data flow contains analog data from on-board commercial vehicle sensors from which the vehicle's gross weight can be determined. .

Additional Sizing Assumptions:
SIZE=8;

fbmcv-basic_mcv_measures

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

vehicle_system_status.

Additional Sizing Assumptions:
None

fbmcv-materials_status

This data flow is used within the Manage Maintenance and Construction function and contains information about the types of materials stored and materials usage rates. .

Additional Sizing Assumptions:
SIZE=64;

fbtv-availability

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

Additional Sizing Assumptions:
SIZE=16;

fbtv-vehicle_maintenance_data

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

Additional Sizing Assumptions:
SIZE=8;

fbtv-vehicle_trip_data

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

Additional Sizing Assumptions:
SIZE=8;

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

fbv-driver_safety_status

This data flow contains sensor data from which driver's state and possible injuries can be determined. The driver's state could include an indication of the ability of the driver to control the vehicle, negative factors being such things as alcohol on the breath, too many mistakes, etc. Injury indicators could pick up on any detectable problems with the vehicle occupants, e.g. sudden change in heart rate, pulse, breathing, etc. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=16;

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 information: brake condition, drive train condition, forward sensors condition, rear sensors condition, side sensors condition, steering condition, vehicle processor condition, fuel level, tire wear and pressure, vehicle external communication condition, and vehicle internal communication condition. .

Additional Sizing Assumptions:
SIZE = 44;

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. .

Additional Sizing Assumptions:
SIZE=4;

fbv-vehicle_identity

This data flow is sent from the basic vehicle to the Manage Traffic and the Provide Vehicle Monitoring and Control functions. It contains the identity of the vehicle from which other data such as ownership, vehicle type, plus data from the Department of Motor Vehicles (DMV) can be obtained. .

Additional Sizing Assumptions:
SIZE=4;

fbv-vehicle_lane_position

This data flow contains analog data from on-board vehicle sensors input from which the vehicle's position within a lane can be computed. .

Additional Sizing Assumptions:
SIZE=16;

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. .

Additional Sizing Assumptions:
SIZE=16;

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 traveling can be computed. .

Additional Sizing Assumptions:
SIZE=12;

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. .

Additional Sizing Assumptions:
SIZE=16;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=4;

fcf-care_facility_status_for_isp

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

Additional Sizing Assumptions:
SIZE=4;

fcf-care_facility_status_response

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

Additional Sizing Assumptions:
SIZE=4;

fcf-care_facility_status_response_for_disaster

This data flow contains information regarding the current status of the care facility. It includes information regarding if the facility is accepting new arrivals, staff on call, waiting times, type of care currently available, specialized services (trauma, burn units), etc. This data is used to assist in establishing a disaster response and recovery plan. .

Additional Sizing Assumptions:
SIZE=4;

fcf-care_facility_vehicle_status_response

This data flow contains the information regarding the current status of the emergency care facility. This information is provided to the emergency personnel on-board the vehicle. It contains information about the location, specialized services, quality of care, waiting time, number of rooms available, and emergency room status of hospitals or emergency care providers. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=8;

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. .

Additional Sizing Assumptions:
SIZE=64;

fci-pull-in_action

This data flow is sent from the commercial vehicle roadside facility inspector to the Manage Commercial Vehicles function. It contains an override of the pull-in or pass decision made as a result of the safety or preclearance processing for a commercial vehicle. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=8;

fcvd-activity_request

This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and contains an activity number which may describe, but not be limited to, request route, request preclearance, store route, provide list of stored route, display route details, and delete route. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=16;

fcvd-driver_characteristics

This data flow contains either sensed biometric properties of an individual commercial vehicle driver or a personal identification code that was entered by the driver. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=128;

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. .

Additional Sizing Assumptions:
SIZE=512;

fcvd-driver_input_type

This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and contains an indication of the type of data that the driver wants to input to the on-board vehicle data collection system. This type may be one of the following: cargo data, repairs and service records, inspection and maintenance data, fuel purchase data, driver identity, driver credentials, driver license citations, carrier identity, data store contents. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=16;

fcvd-driver_response

This data flow contains a commercial vehicle driver's response to a security or safety related alert which has been detected on-board a commercial vehicle or by the fleet-freight manager. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=16;

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. .

Additional Sizing Assumptions:
SIZE=13;

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. .

Additional Sizing Assumptions:
SIZE=100;

fcvd-request_routing_instructions

This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and contains a request for instructions on which route to take and any cargo that must be picked up or dropped off at the origin, destination and/or intermediate points along the route. This data does not include any route guidance instructions as the driver will be able to obtain this data through the Provide Driver and Traveler Services function when the route origin, destination and intermediate points are known. .

Additional Sizing Assumptions:
SIZE=16;

fcvd-request_tag_data_output

This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function. It contains a request for the output of the current data that is stored on a commercial vehicle's two tag. Only the data that can be written by the manager is output. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=64;

fcvd-trip_identification_number

This data flow is used within the Manage Commercial Vehicle function. It contains the unique trip load number for a specific cross-border shipment for the commercial vehicle driver. The data flow consists of the following data item each of which is defined in its own DDE:

cv_trip_identity.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=16;

fd-activate_vehicle_control

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

Additional Sizing Assumptions:
SIZE=8;

fd-emergency_request

This data flow is sent from the driver and to the Provide Driver and Traveler Services function. It may consist of any the following items: medical services required - please send medical assistance; other vehicle damage crash - a crash has occurred involving other vehicles; minor property damage only crash - a crash has occurred which only involves minor property damage; breakdown - the vehicle has broken down; security alarm - driver in danger, please send emergency services; cancel - cancel any previous emergency request. Several items may be sent simultaneously with the exception of the last one which will be sent on its own. .

Additional Sizing Assumptions:
SIZE=8;

fd-guidance_data

This data flow is input by a driver to the Provide Driver and Traveler Services function and contains data requested so that a vehicle route can be determined for which on-line guidance can be provided. .

Additional Sizing Assumptions:
SIZE=64;

fd-guidance_map_update_request

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

Additional Sizing Assumptions:
SIZE=8;

fd-guidance_request

This data flow is sent from the driver to the Provide Driver and Traveler Services function. It contains a request to provide on-line guidance of the driver's vehicle and specifies a choice of the type of preferred guidance, i.e. infrastructure based dynamic, autonomous with link journey and queue times provided from the infrastructure, and totally autonomous. The driver will be prompted for further data in order that the guidance can begin. .

Additional Sizing Assumptions:
SIZE=4;

fd-guidance_route_accepted

This data flow is sent from the driver to the Provide Driver and Traveler Services function. It contains acceptance of the route that has been generated in response to a previous request from the driver for on-line guidance. Guidance will not begin until the acceptance has been received. .

Additional Sizing Assumptions:
SIZE=1;

fdmv-emissions_violation_state_identity

This data flow is sent from the department of motor vehicles to the Manage Emergency Services function and contains the identity of the state that is supplying the requested vehicle registration data to enable a emissions violation to be processed. .

Additional Sizing Assumptions:
SIZE=1;

fdmv-emissions_violation_vehicle_registration

This data flow is sent from the department of motor vehicles to the Manage Emergency Services function and contains the requested vehicle registration data to enable a pollution violation to be processed. .

Additional Sizing Assumptions:
SIZE=9;

fdmv-parking_lot_violation_state_identity

This data flow is sent from the department of motor vehicles to the Manage Emergency Services function and contains the identity of the state that is supplying the requested vehicle registration data to enable a parking lot payment violation to be processed. .

Additional Sizing Assumptions:
SIZE=1;

fdmv-parking_lot_violation_vehicle_registration

This data flow is sent from the department of motor vehicles to the Manage Emergency Services function and contains the requested vehicle registration data to enable a parking lot payment violation to be processed. .

Additional Sizing Assumptions:
SIZE=9;

fdmv-toll_violation_state_identity

This data flow is sent from the department of motor vehicles to the Manage Emergency Services function and contains the identity of the state that is supplying the requested vehicle registration data to enable a toll payment violation to be processed. .

Additional Sizing Assumptions:
SIZE=1;

fdmv-toll_violation_vehicle_registration

This data flow is sent from the department of motor vehicles to the Manage Emergency Services function and contains the requested vehicle registration data to enable a toll payment violation to be processed. .

Additional Sizing Assumptions:
SIZE=9;

fdmv-traffic_violation_state_identity

This data flow is sent from the department of motor vehicles to the Manage Emergency Services function and contains the identity of the state that is supplying the requested vehicle registration data to enable a high occupancy vehicle (hov) lane to be processed. .

Additional Sizing Assumptions:
SIZE=1;

fdmv-traffic_violation_vehicle_registration

This data flow is sent from the department of motor vehicles to the Manage Emergency Services function and contains the requested vehicle registration data to enable a high occupancy vehicle (hov) lane to be processed. .

Additional Sizing Assumptions:
SIZE=9;

fd-other_services_parking_request

This data flow is input from a driver to the Provide Driver and Traveler Services function and contains a request for additional services other than simple parking lot charge collection. These may comprise advanced payment of fares, parking lot charges, or toll charges. .

Additional Sizing Assumptions:
SIZE=8;

fd-other_services_toll_request

This data flow is input from a driver to the Provide Driver and Traveler Services function and contains a request for additional services other than simple toll collection. These services may comprise advanced payment of fares, parking lot charges, or toll charges. The information provided by the driver must include sufficient information for the parking lot charge and/or transit fare to be determined. .

Additional Sizing Assumptions:
SIZE=8;

fd-request_advisory_information

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

Additional Sizing Assumptions:
SIZE=8;

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. .

Additional Sizing Assumptions:
SIZE=32;

fea-enforcement_parameters

This data flow contains parameters used by the receiving process to determine when speed violations have occurred. The parameters would include the speed above which a speed violation is considered to have occurred. .

Additional Sizing Assumptions:
SIZE=32;

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 nitrogen oxides, 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. .

Additional Sizing Assumptions:
SIZE=24;

fea-speed_sensor_control

This data flow provides control commands for speed sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{sensor_identity
+ speed_sensor_control}.

Additional Sizing Assumptions:
None

fea-violator_information

This data flow is used within the Manage Commercial Vehicles function. It contains information in response to a request from Enforcement Agencies for more information on violators relating to commercial vehicle violations or entity specific violations. .

Additional Sizing Assumptions:
SIZE=4;

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.

Additional Sizing Assumptions:
None

feedback_actuator_status

This data flow is used within the Provide Vehicle Monitoring and Control function and contains the current status (manual input or normal operation) of and the pass/fail result of the Built In Self Test (BIST) processing. .

Additional Sizing Assumptions:

SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=1;

feedback_lane_servo_status

This data flow is used within the Provide Driver Monitoring and Control function. It contains the current status (manual input or normal operation) of and the result of the Built In Self Test (BIST) processing. .

Additional Sizing Assumptions:
SIZE=1;

feedback_platoon_status

This data flow is used within the Provide Driver Monitoring and Control function. It contains the current status of, and the result of the Built In Self Test (BIST) processing. The status could include manual input detected, normal operation, or if the vehicle or driver is unsafe. .

Additional Sizing Assumptions:
SIZE=1;

feedback_sensor_status

This data flow is used within the Provide Driver Monitoring and Control function. It contains the current status (manual input or normal operation) of and the result of the Built In Self Test (BIST) processing. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

feedback_speed_servo_status

This data flow is used within the Provide Driver Monitoring and Control function. It contains the current status (manual input or normal operation) of and the result of the Built In Self Test (BIST) processing. .

Additional Sizing Assumptions:
SIZE=1;

femo-pollution_data_information_request

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

Additional Sizing Assumptions:
SIZE=4;

femo-pollution_parameter_updates

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

Additional Sizing Assumptions:
SIZE=32;

fep-emergency_dispatch_acknowledge

This data flow is sent from the emergency personnel to the Manage Emergency Services function to acknowledge that the emergency vehicle has been dispatched and is on its way to the incident identified in the dispatch request. .

Additional Sizing Assumptions:
SIZE=4;

fep-incident_command_inputs

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

Additional Sizing Assumptions:
SIZE=48;

fep-incident_status

This data flow is sent from the emergency personnel to report the current status of an incident, e.g. length of time to clear site, length of time involved in work at site, type of incident, incident severity, and the location. It also includes information regarding the status of patients or persons involved in the incident. It may include real time information from emergency personnel in the vehicles en-route to emergency care facilities .

Additional Sizing Assumptions:
SIZE=16;

ferf-current_fleet_maintenance_status

This data flow is sent from the equipment repair facility to the Manage Maintenance and Construction function and includes information on the maintenance status of all of the maintenance and construction vehicles in the fleet. .

Additional Sizing Assumptions:
SIZE=1024;

ferf-equipment_repair_status

This data flow is sent from the equipment repair facility to the Manage Maintenance and Construction function and includes information on the maintenance and repair status of all of the maintenance and construction support equipment. .

Additional Sizing Assumptions:
SIZE=1024;

ferf-equipment_status_for_tracking

This data flow is sent from the equipment repair facility to the Manage Maintenance and Construction function and includes data on the maintenance and repair status, and location of all of the maintenance and construction support equipment. .

Additional Sizing Assumptions:
SIZE=1024;

ferf-fleet_maintenance_record

This data flow is sent from the equipment repair facility to the Manage Maintenance and Construction function and includes the actual maintenance and repair record of each of the maintenance and construction vehicles in the fleet. .

Additional Sizing Assumptions:
SIZE=32768;

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 nitrogen oxides, sulfur dioxide, hydrocarbons, carbon monoxide and ozone, that are generally present at the roadside. .

Additional Sizing Assumptions:
SIZE=24;

ferry_services_costs

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

cost.

Additional Sizing Assumptions:
SIZE=8{cost};

ferry_services_destination

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

route_point.

Additional Sizing Assumptions:
None

ferry_services_destination_arrival_time

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

time.

Additional Sizing Assumptions:
None

ferry_services_details

This data flow is used within the Provide Driver and Traveler Services function and contains details of the services provided by ferry operators that may be suitable for use by a traveler as part of a proposed trip. It consists of the following data items each of which is defined in its own DDE:

ferry_services_costs
+ ferry_services_routes
+ ferry_services_schedules.

Additional Sizing Assumptions:
None

ferry_services_intermediate_arrival_time

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

time.

Additional Sizing Assumptions:
None

ferry_services_intermediate_depart_time

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

time.

Additional Sizing Assumptions:

None

ferry_services_intermediate_point

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

route_point.

Additional Sizing Assumptions:
None

ferry_services_origin

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

route_point.

Additional Sizing Assumptions:
None

ferry_services_origin_depart_time

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

time.

Additional Sizing Assumptions:
None

ferry_services_route_details

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

ferry_services_origin
+ ferry_services_intermediate_point
+ ferry_services_destination.

Additional Sizing Assumptions:
None

ferry_services_routes

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

ferry_services_route_details.

Additional Sizing Assumptions:
None

ferry_services_schedule_details

This data flow is used within the Provide Driver and Traveler Services function. It contains details of the departure and arrival times at places along a ferry route that will suit a traveler's proposed trip and is associated with a cost and a route. The data flow consists of the following data items each of which is defined in its own DDE:

ferry_services_origin_depart_time
+ ferry_services_intermediate_arrival_time
+ ferry_services_intermediate_depart_time
+ ferry_services_destination_arrival_time.

Additional Sizing Assumptions:
None

ferry_services_schedules

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

ferry_services_schedule_details.

Additional Sizing Assumptions:
SIZE=8{ferry_services_schedule_details};

feso-alerts_and_advisories

This data flow is sent from the Emergency System Operator to the Manage Emergency Services function and contains alerts and advisory information. This flow can provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction and to be on the look out for certain conditions. .

Additional Sizing Assumptions:
SIZE=256;

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. .

Additional Sizing Assumptions:
SIZE=256;

feso-emergency_action_log_request

This data flow is sent by the emergency system operator to the Manage Emergency Services function. It contains a request for output of the emergency services action log. This records responses to all incidents, disaster, or other emergencies that have been reported through this function from the other Emergency Management Centers, the E911 or Emergency Telephone Services, or by other ITS functions. .

Additional Sizing Assumptions:
SIZE=2;

feso-emergency_allocation_override

This data flow is sent by the emergency system operator to the Manage Emergency Services function. It contains an override of the current pre-defined allocation of emergency services to respond to a particular current incident, disaster, or other emergency. .

Additional Sizing Assumptions:
SIZE=512;

feso-emergency_data_input

This data flow is sent by the emergency system operator to the Manage Emergency Services function. It contains the operator's request for one of the following: no action, override the emergency services allocation for an incident (requires the number and type), data for the allocation criteria store, a request for output from the log, or a request for output of the criteria store. .

Additional Sizing Assumptions:
SIZE=4;

feso-emergency_data_output_request

This data flow is sent by the emergency system operator to the Manage Emergency Services function. It contains a request for output of the data that defines the emergency services that must be allocated for all the different types of incidents, disasters, and other emergencies that can be detected by processes within ITS functions. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

feso-emergency_response

This data flow is sent by the emergency system operator to the Manage Emergency function and is used to acknowledge the receipt of an emergency request previously sent by the Manage Emergency function. .

Additional Sizing Assumptions:
SIZE=2;

feso-image_processing_parameters

This data flow contains parameters to define how the surveillance video image data collected from secure areas (frequented by travelers, such as transit stops, rest areas, park and ride lots, etc., or away from travelers, such as tunnels and bridges, etc.) for use in image matching analysis is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing in the field and may include the timeframe in which to search, the image characteristics that are to be analyzed, the location, etc. .

Additional Sizing Assumptions:
SIZE=32;

feso-secure_area_sensor_surveillance_control

This data flow is sent from the Emergency System Operator to the Manage Emergency Services function and contains configuration and control information for sensor and surveillance equipment in secure areas, including those frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) or areas typically away from travelers (i.e., bridges, tunnels, and other infrastructure). This data flow also includes parameters for processing the data and for detecting threats. .

Additional Sizing Assumptions:
SIZE=256;

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. .

Additional Sizing Assumptions:
SIZE=64;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

fevp-event_information

This data flow is sent from the event promoters terminator to the Manage Traffic function and contains details of a special event that may become a possible incident due to its impact on the traffic flowing on one or more lanes of a road or highway. This data flow also contains contact information for the event which would include the phone number, address, and name of the organization or person responsible for the event or reporting the event .

Additional Sizing Assumptions:
SIZE=64;

fevp-event_information_for_travelers

This data flow is sent from the event promoters directly to the Provide Driver and Traveler Services function and contains information that might be of interest to travelers planning trips, particularly information on special events. .

Additional Sizing Assumptions:
SIZE=1024;

fevp-planned_event_data

This data flow is sent from the event promoters terminator directly to the Manage Emergency Services function. It carries data about planned events in order to coordinate with the emergency service providers and process information about planned activities in preparation for an incident. .

Additional Sizing Assumptions:
SIZE=32;

ffe-breach_warning

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

freight_breach.

Additional Sizing Assumptions:
None

ffe-breach_warning_for_cv

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

freight_breach.

Additional Sizing Assumptions:
None

ffe-cargo_info_for_cv

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

cargo_data
+ cargo_safety_status.

Additional Sizing Assumptions:

None

ffe-cargo_information

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

cargo_data
+ cargo_safety_status.

Additional Sizing Assumptions:
None

ffe-freight_breach

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

freight_breach.

Additional Sizing Assumptions:
None

ffe-freight_equipment_info

This data flow contains container, trailer or chassis information in support of freight equipment operations, maintenance, and integrity. The data flow consists of the following data items each of which is defined in its own DDE:

freight_operations
+ freight_maintenance
+ freight_equipment_location
+ freight_integrity
+ cargo_data
+ cargo_safety_status.

Additional Sizing Assumptions:
None

ffe-integrity_data

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

freight_integrity.

Additional Sizing Assumptions:
None

ffe-integrity_data_for_cv

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

freight_integrity.

Additional Sizing Assumptions:

None

ffe-location_data

This data flow contains location data from freight equipment used by many processes. The data flow consists of the following data item that is defined in its own DDE:

freight_equipment_location.

Additional Sizing Assumptions:
None

ffe-location_data_for_cv

This data flow contains location data from freight equipment used by many processes. The data flow consists of the following data item that is defined in its own DDE:

freight_equipment_location.

Additional Sizing Assumptions:
None

ffe-lock_tag_data

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

Additional Sizing Assumptions:
SIZE=2;

ffe-lock_tag_data_for_cv

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

Additional Sizing Assumptions:
SIZE=2;

ffe-maintenance_data

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

freight_maintenance.

Additional Sizing Assumptions:
None

ffe-maintenance_data_for_cv

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

freight_maintenance.

Additional Sizing Assumptions:
None

ffe-operational_data

This data flow contains information regarding the availability of freight equipment. It provides information regarding load status (i.e. trailer empty), chassis status (i.e. chassis bare) and other indicators that determine the availability of freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

freight_operations.

Additional Sizing Assumptions:
None

ffe-operational_data_for_cv

This data flow contains information regarding the availability of freight equipment. It provides information regarding load status (i.e. trailer empty), chassis status (i.e. chassis bare) and other indicators that determine the availability of freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

freight_operations.

Additional Sizing Assumptions:
None

ffe-sensed_hazmat

This data flow represents the hazardous material characteristics sensed at a commercial vehicle roadside checking facility. This data is acquired by roadside sensors from the freight equipment electronically, optically, or manually and will include data such as such as type of hazardous material. .

Additional Sizing Assumptions:
SIZE=1;

fffm-carrier_number

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

Additional Sizing Assumptions:
SIZE=16;

fffm-driver_number

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

Additional Sizing Assumptions:
SIZE=16;

fffm-enrollment_payment_request

This data flow contains a request for payment of the taxes and duties needed to cover the enrollment of a particular class of vehicle and cargo at a particular weight on a particular route. The data will include the account number from which the cost of the taxes and duties are to be deducted and the route number to which they apply. .

Additional Sizing Assumptions:
SIZE=16;

fffm-enrollment_request

This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function and contains a request for the enrollment of a particular class of vehicle and cargo at a particular weight on a particular route. .

Additional Sizing Assumptions:
SIZE=16;

fffm-freight_data_input

This data flow is sent from the freight manager to the Manage Commercial Vehicles function and contains data to support freight transportation booking and scheduling freight equipment maintenance. .

Additional Sizing Assumptions:
SIZE=1;

fffm-freight_incident_response

This data flow contains the response from a fleet-freight manager to a security alert involving freight equipment. The response may be a request further information or a command to alert public safety authorities of a freight incident. .

Additional Sizing Assumptions:
SIZE=2;

fffm-incident_response

This data flow contains the response from a fleet-freight manager to a security alert involving a commercial vehicle. The response may be a request further information or a command to alert public safety authorities of a commercial vehicle incident. .

Additional Sizing Assumptions:
SIZE=2;

fffm-other_data_input

This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function and contains the response to a previous request for other data to be input for use within the function. .

Additional Sizing Assumptions:
SIZE=16;

fffm-preclearance_data

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

Additional Sizing Assumptions:
SIZE=20;

fffm-request_driver_route_instructions

This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function and contains a request for the data that defines the route that the commercial vehicle driver is to follow and/or details of cargo to be picked up and/or dropped at the origin, destination or intermediate points. .

Additional Sizing Assumptions:
SIZE=8;

fffm-request_on_board_vehicle_data

This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function. It contains a request for the data that has been obtained from the store of safety and trip related data on-board a commercial vehicle. .

Additional Sizing Assumptions:
SIZE=8;

fffm-request_tag_data_output

This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function. It contains a request for the output of the current data that is stored on a commercial vehicle's tag. Only the data that can be written by the manager is output. .

Additional Sizing Assumptions:
SIZE=2;

fffm-roadside_activity_report_request

This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function. It contains a request for output of the commercial vehicle roadside checkstation facility logs, showing the activities of a particular carrier, driver and vehicle combination. The request may be for a one time report or for the report to be produced periodically. .

Additional Sizing Assumptions:
SIZE=64;

fffm-route_data

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

Additional Sizing Assumptions:
SIZE=64;

fffm-route_function_request

This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function. It contains an activity number which may signify, but not be limited, to request route, request preclearance, store route, provide list of stored routes, display route details, or delete route. .

Additional Sizing Assumptions:
SIZE=1;

fffm-trip_identity

This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function and contains the commercial vehicle trip identification number to be entered into the vehicle's tag data store. The data flow consists of the following data item each of which is defined in its own DDE:

cv_trip_identity.

Additional Sizing Assumptions:
None

fffm-update_driver_route_instructions

This data flow is sent from the commercial vehicle fleet manager to the Manage Commercial Vehicles function and contains changes or additions to the data defining the route that the driver is to follow and/or details of cargo to be picked up and/or dropped at the origin, destination or intermediate points. .

Additional Sizing Assumptions:
SIZE=64;

fffm-vehicle_number

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

Additional Sizing Assumptions:
SIZE=16;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=256;

ffi-bad_fare_payment_updates

This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains data about a transit fare transaction that was either attempted but did not work, or for which the subsequent payment transaction by the Financial Institution failed. The data is to be used within the function for checking against future fare transaction data. .

Additional Sizing Assumptions:
SIZE=256;

ffi-bad_toll_payment_updates

This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains data about a parking lot charge transaction that was either attempted but did not work, or for which the subsequent payment transaction by the Financial Institution failed. The data is to be used within the function for checking against future parking lot charge transaction data. .

Additional Sizing Assumptions:
SIZE=256;

ffi-confirm_charges_payment

This data flow is sent from the Financial Institution to the Provide Electronic Payment Services function and is set for a parking lot charge payment transaction not completed, or for a valid completion. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

ffi-other_services_payment_confirm

This data flow is sent from the financial institution to the Provide Electronic Payment Services function. It contains confirmation that a previously submitted request from a traveler (including a user of the transit system) for payment for other (yellow pages) services has been accepted and made. .

Additional Sizing Assumptions:
SIZE=2;

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 travelers (including users of the transit system) has been accepted and made. .

Additional Sizing Assumptions:
SIZE=2;

ffi-traveler_display_payment_confirm

This data flow is sent from the financial institution to the Provide Electronic Payment Services function. It contains confirmation that a previously submitted request from a traveler for payment for the update of the digitized map data used as the background for displays of traffic and travel information on a traveler's personal device has been accepted and made. .

Additional Sizing Assumptions:
SIZE=2;

ffi-traveler_map_payment_confirm

This data flow is sent from the financial institution to the Provide Electronic Payment Services function. It contains confirmation that a previously submitted request from a traveler for payment for the update of the navigable map database used for on-line personal guidance has been accepted and made. .

Additional Sizing Assumptions:
SIZE=2;

ffi-traveler_other_services_payments_confirm

This data flow is sent from the financial institution to the Provide Electronic Payment Services function. It contains confirmation that a previously submitted request from a traveler for payment for other (yellow pages) services has been accepted and made. .

Additional Sizing Assumptions:
SIZE=2;

ffi-traveler_rideshare_payment_confirm

This data flow is sent from the financial institution to the Provide Electronic Payment Services function. It contains confirmation that a previously submitted request from a traveler for payment for the provision of rideshare services has been accepted and made. .

Additional Sizing Assumptions:
SIZE=2;

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). .

Additional Sizing Assumptions:
SIZE=1024;

field_device_status_for_archive

This data flow is sent from the Manage Maintenance and Construction function to the Manage Archived Data function and contains information to be archived about the field equipment that require repairs. It consists of the following data items each of which is defined in its own DDE:

traffic_sensor_equip_status_for_m_and_c
+ dms_equip_status_for_m_and_c
+ har_equip_status_for_m_and_c
+ env_sensor_equip_status_for_m_and_c
+ hov_sensor_equip_status_for_m_and_c
+ indicator_equip_status_from_roads_for_m_and_c
+ indicator_equip_status_from_highways_for_m_and_c
+ auto_treat_equip_status_for_m_and_c
+ infrastructure_sensor_equip_status_for_m_and_c
+ smart_probe_equip_status_for_m_and_c
+ vehicle_sign_equip_status_for_m_and_c
+ video_device_equip_status_for_m_and_c
+ barrier_system_equip_status_for_m_and_c
+ safeguard_system_equip_status_for_m_and_c
+ security_sensor_equip_status_for_m_and_c
+ security_surveillance_equip_status_for_m_and_c.

Additional Sizing Assumptions:
None

field_device_status_for_archive_attributes

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

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

Additional Sizing Assumptions:
None

field_device_status_from_roadway

This data flow is used within the Manage Maintenance and Construction function to identify field equipment that require repairs. It consists of the following data items each of which is defined in its own DDE:

traffic_sensor_equip_status_for_m_and_c
+ dms_equip_status_for_m_and_c
+ har_equip_status_for_m_and_c
+ env_sensor_equip_status_for_m_and_c
+ hov_sensor_equip_status_for_m_and_c
+ indicator_equip_status_from_roads_for_m_and_c
+ indicator_equip_status_from_highways_for_m_and_c
+ auto_treat_equip_status_for_m_and_c
+ infrastructure_sensor_equip_status_for_m_and_c
+ smart_probe_equip_status_for_m_and_c
+ vehicle_sign_equip_status_for_m_and_c
+ video_device_equip_status_for_m_and_c
+ barrier_system_equip_status_for_m_and_c
+ safeguard_system_equip_status_for_m_and_c
+ security_sensor_equip_status_for_m_and_c
+ security_surveillance_equip_status_for_m_and_c.

Additional Sizing Assumptions:
None

field_equip_maint_status

This data flow consists of a report to the Manage Traffic function from the Manage Maintenance and Construction function of the current status of field equipment maintenance activity. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id

+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

field_equip_status_from_mcv_operator

This data flow consists of data based on inputs from maintenance and construction field personnel concerning the current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

field_equipment_status_from_traffic

This data flow consists of a report to the Manage Maintenance and Construction function from the Manage Traffic function of the field equipment requiring repair and known information about the associated faults. The receiving process will use this data to arrange for repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

field_processed_infrastructure_integrity_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing data from infrastructure monitoring sensors. It is analyzed and used to detect integrity problems on roadway infrastructure such as bridges, or on rail infrastructure such as tracks, etc. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ infrastructure_integrity_sensor_processed_data}.

Additional Sizing Assumptions:
None

field_processed_intrusion_motion_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing intrusion or motion detection sensor data. It is analyzed and used to detect potential threats in secure areas typically away from travelers, such as bridges, tunnels, and other roadway infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ intrusion_motion_sensor_processed_data}.

Additional Sizing Assumptions:
None

field_processed_object_detection_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing object detection sensor data. It is analyzed and used to detect potential threats in secure areas typically away from travelers, such as bridges, tunnels, and other roadway infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ object_sensor_processed_data}.

Additional Sizing Assumptions:
None

field_processed_secure_area_audio

This data flow is used within the Manage Emergency Services function and contains the data produced by processing audio data from surveillance systems. It is analyzed and used to detect potential threats in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ surveillance_device_type_identity
+ secure_audio_data}.

Additional Sizing Assumptions:
None

field_processed_secure_area_images

This data flow is used within the Manage Emergency Services function and contains the data produced by processing image data from systems such as surveillance closed circuit television (cctv). It is analyzed and used to detect potential threats in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ surveillance_device_type_identity
+ secure_video_image_data}.

Additional Sizing Assumptions:
None

field_processed_threat_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing threat sensor data (e.g., thermal, acoustic, radiological, chemical). It is analyzed and used to detect potential threats in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ threat_sensor_processed_data}.

Additional Sizing Assumptions:

None

field_processed_traveler_intrusion_motion_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing intrusion or motion detection sensor data. It is analyzed and used to detect potential threats in secure areas frequented by travelers during normal operational hours, but typically empty during off-hours, including transit stops, rest areas, travel information centers, etc. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ intrusion_motion_sensor_processed_data}.

Additional Sizing Assumptions:
None

field_processed_traveler_object_detection_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing object detection sensor data. It is analyzed and used to detect potential threats in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ object_sensor_processed_data}.

Additional Sizing Assumptions:
None

field_processed_traveler_secure_area_audio

This data flow is used within the Manage Emergency Services function and contains the data produced by processing audio data from surveillance systems. It is analyzed and used to detect potential threats in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. The data flow consists of the following data items each of which is defined in its own DDE:

list_size+ list_size{station_id
+ surveillance_device_type_identity
+ secure_audio_data}.

Additional Sizing Assumptions:
None

field_processed_traveler_secure_area_images

This data flow is used within the Manage Emergency Services function and contains the data produced by processing image data from systems such as surveillance closed circuit television (cctv). It is analyzed and used to detect potential threats in secure areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ surveillance_device_type_identity
+ secure_video_image_data}.

Additional Sizing Assumptions:
None

field_processed_traveler_threat_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing threat sensor data (e.g., thermal, acoustic, radiological, chemical). It is analyzed and used to detect potential threats in secure areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ threat_sensor_processed_data}.

Additional Sizing Assumptions:
None

field_processed_vehicle_object_detection_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing object detection sensor data. It is analyzed and used to detect potential threats on-board transit vehicles. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ object_sensor_processed_data}.

Additional Sizing Assumptions:
None

field_processed_vehicle_secure_area_audio

This data flow is used within the Manage Emergency Services function and contains the data produced by processing audio data from surveillance systems. It is analyzed and used to detect potential threats on-board a transit vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_audio_data}.

Additional Sizing Assumptions:
None

field_processed_vehicle_secure_area_images

This data flow is used within the Manage Emergency Services function and contains the data produced by processing image data from systems such as surveillance closed circuit television (cctv). It is analyzed and used to detect potential threats on-board a transit vehicle. The data consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image_data}.

Additional Sizing Assumptions:
None

field_processed_vehicle_threat_sensor_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing threat sensor data (e.g., thermal, acoustic, radiological, chemical). It is analyzed and used to detect potential threats on-board transit vehicles. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ threat_sensor_processed_data}.

Additional Sizing Assumptions:
None

field_status

This data flow is used within the Manage Traffic function to show status of field devices, including dynamic message signs, HAR, signal equipment, ramp meters, CCTVs, etc. The data flow consists of the following data items each of which is defined in its own DDE:

dms_status
+ har_status
+ indicator_data_fault_for_roads
+ indicator_data_fault_for_highways
+ traffic_control_device_status
+ video_device_status
+ vehicle_sign_data_status
+ smart_probe_reader_status.

Additional Sizing Assumptions:
None

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, etc. .

Additional Sizing Assumptions:
SIZE = 64;

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.

Additional Sizing Assumptions:
None

fifd-intermodal_freight_event

This data flow sent from the Intermodal Freight Depot terminator to the Manage Traffic function contains data about the movement of freight by means that may include methods other than commercial vehicles, e.g. heavy rail,

air, sea, river, etc. This movement of freight may become a possible traffic incident due to its impact on the traffic flowing on one or more lanes of a road or highway. .

Additional Sizing Assumptions:
SIZE = 64;

fifs-book_transportation

This data flow contains the information used to reserve freight transportation. It includes information about the shipper, consignee, commodities, pick-up and drop-off locations for freight equipment. It consists of the following items each of which is defined in its own DDE:

freight_equipment_number
+ freight_shipment_information.

Additional Sizing Assumptions:
None

fifs-breach_response

This data flow represents an Intermodal Freight Shipper's response to a breach or tamper event of their freight equipment. .

Additional Sizing Assumptions:
SIZE=2;

fifs-freight_data

This data flow sent from the Intermodal Freight Shipper terminator to the Manage Commercial Vehicles function contains data about the movement of freight by means that may include methods other than commercial vehicles, e.g. heavy rail, air, sea, river, etc. .

Additional Sizing Assumptions:
SIZE = 64;

fifs-trip_id_number

This data flow is sent from the intermodal freight shipper and contains the unique trip load number for a specific cross-border shipment. The data flow consists of the following data item each of which is defined in its own DDE:

cv_trip_identity.

Additional Sizing Assumptions:
None

fifs-trip_identification_number

This data flow is sent from the intermodal freight shipper to the Manage Commercial Vehicle function and it contains the unique trip load number for a specific cross-border shipment. The data flow consists of the following data item each of which is defined in its own DDE:

cv_trip_identity.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

financial_response

This data flow contains the response to the request for payment of permits and duties made by either the commercial fleet manager or the commercial vehicle driver acting in the role of fleet manager. It consists of the following items each of which is defined in its own DDE:

cf_manager_credit_identity
+ cv_driver_credit_identity
+ authorization_code.

Additional Sizing Assumptions:
None

fispo-archive_commands

This data flow is sent from the ISP system operator to the Provide Driver and Traveler Services function and contains data administration commands that the Provide Driver and Traveler Services function will use to control the archival of traveler information data by the Manage Archived Data function. These commands may include the data that is to be archived, how the data is processed, how the data is stored, data elements that are deleted, etc. .

Additional Sizing Assumptions:
SIZE=256;

fispo-broadcast_data_parameters_request

This data flow is sent from the ISP operator to the Provide Driver and Traveler Services function. It contains a request for the output of the parameters used in the output of wide area information broadcasts. .

Additional Sizing Assumptions:
SIZE=1;

fispo-broadcast_data_parameters_update

This data flow is sent from the ISP operator to the Provide Driver and Traveler Services function. It contains updates of parameters used in wide area information broadcast to drivers and travelers (including users of the transit system) in a vehicle. These parameters are used to 'filter' the available data to pick out that which is unusual or which is useful if broadcast. .

Additional Sizing Assumptions:
SIZE=32;

fispo-request_other_routes_selection_map_data_update

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

Additional Sizing Assumptions:
SIZE=6;

fispo-request_route_selection_map_data_update

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

Additional Sizing Assumptions:
SIZE=6;

fispo-route_selection_parameters_request

This data flow is sent from the ISP operator to the Provide Driver and Traveler Services function and contains a request for output of the parameters currently being used to govern the selection of routes by the trip planning processes. .

Additional Sizing Assumptions:
SIZE=6;

fispo-route_selection_parameters_update

This data flow is sent from the ISP operator to the Provide Driver and Traveler Services function and contains an update of the parameters used to govern the selection of routes by the route selection process that provide both vehicle routes to travelers and on-line guidance to drivers. .

Additional Sizing Assumptions:
SIZE=64;

fispo-trip_planning_parameters_request

This data flow is sent from the ISP operator to the Provide Driver and Traveler Services function and contains a request for output of the parameters used to govern the selection of routes by the trip planning process. .

Additional Sizing Assumptions:
SIZE=6;

fispo-trip_planning_parameters_update

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

Additional Sizing Assumptions:
SIZE=64;

fispo-yellow_pages_operator_inputs

This data flow is sent from the ISP operator to the Manage Yellow Pages Services function and contains data administration commands and configuration parameter that the Yellow Pages function will use to control the interface to the travelers as well as the yellow pages service providers. These inputs may include the types of information to be provided, the formats required, payment required for services, frequency of updates to the data, etc. .

Additional Sizing Assumptions:
SIZE=255;

fleet_activity_schedule

This data flow is used within the Manage Maintenance and Construction function and contains the work activity schedule for use by maintenance and construction vehicle fleet management. This flow includes the schedule, work activity to be performed, the site location, and any special instructions. .

Additional Sizing Assumptions:
SIZE=256;

fleet_maintenance_availability

This data flow is used within the Manage Maintenance and Construction function and contains information on when the maintenance and construction vehicles will be available for preventive and corrective maintenance. .

Additional Sizing Assumptions:
SIZE=36;

fleet_maintenance_record

This data flow is used within the Manage Maintenance and Construction function and includes the actual maintenance and repair record of each of the maintenance and construction vehicles in the fleet. .

Additional Sizing Assumptions:
SIZE=32768;

fleet_management_dispatch_input

This data flow is used within the Manage Maintenance and Construction function and includes information such as fleet activity schedules, dispatch orders, and other information needed by the maintenance and construction vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

dispatch_info_for_m_and_c_fleet
+ routing_parameters_for_m_and_c_fleet
+ fleet_activity_schedule.

Additional Sizing Assumptions:
None

fleet_management_status

This data flow is used within the Manage Maintenance and Construction function and includes information such as fleet activity status for the scheduler, status collector, and maintenance and construction center personnel from the fleet manager. It consists of the following data items each of which is defined in its own DDE:

vehicle_fleet_status_for_personnel
+ vehicle_fleet_status_for_scheduler

+ m_and_c_fleet_manager_status.

Additional Sizing Assumptions:
None

fleet_map_data

This data store is used within the Manage Commercial Vehicles function and contains digitized map data which will be used by the commercial vehicle fleet managers. It consists of the following data item which is defined in its own DDE:

map_data.

Additional Sizing Assumptions:
None

fleet_resource_request

This data flow is used within the Manage Maintenance and Construction function and contains a request and information about the types of maintenance and construction vehicle resources needed. This includes those requests for resources from other agencies, such as emergency services and traffic management. The request will be evaluated by the maintenance and construction vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{mcv_vehicle_type
+ date
+ time}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_OF_MCV{mcv_vehicle_type
+ date
+ time};

fleet_resource_response

This data flow is used within the Manage Maintenance and Construction function and contains a list of the maintenance and construction fleet vehicles available for use. The data flow consists of the following data items each of which is defined in its own DDE:

fleet_vehicle_available.

Additional Sizing Assumptions:
None

fleet_vehicle_available

This data flow is used within the Manage Maintenance and Construction function and contains a list of the maintenance and construction fleet vehicles available for use. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{vehicle_id_for_mcv
+ mcv_vehicle_type
+ mcv_equipment_configuration
+ vehicle_location_for_mcv
+ date
+ time}.

Additional Sizing Assumptions:
None

fleet_vehicle_request_for_maint_needs

This data flow is used within the Manage Maintenance and Construction functions and contains the requests for assistance from the maintenance and construction vehicle fleet management. The data flow consists of the following data items each of which is defined in its own DDE:

fleet_resource_request
+ fleet_vehicle_request_for_winter_maint
+ fleet_vehicle_request_for_roadway_maint.

Additional Sizing Assumptions:
None

fleet_vehicle_request_for_roadway_maint

This data flow is used within the Manage Maintenance and Construction function and contains a request and information about the types of maintenance and construction vehicle resources needed for routine roadway maintenance activities. The request will be evaluated by the maintenance and construction vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{mcv_vehicle_type
+ date
+ time}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_OF_MCV{mcv_vehicle_type
+ date
+ time};

fleet_vehicle_request_for_winter_maint

This data flow is used within the Manage Maintenance and Construction function and contains a request and information about the types of maintenance and construction vehicle resources needed for winter maintenance activities. The request will be evaluated by the maintenance and construction vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{mcv_vehicle_type
+ date
+ time}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_OF_MCV{mcv_vehicle_type
+ date
+ time};

fleet_vehicle_response_to_maint_needs

This data flow is used within the Manage Maintenance and Construction functions and contains the responses to requests for assistance from the maintenance and construction vehicle fleet management. The data flow consists of the following data items each of which is defined in its own DDE:

fleet_resource_response
+ fleet_vehicle_response_to_winter_maint
+ fleet_vehicle_response_to_roadway_maint.

Additional Sizing Assumptions:
None

fleet_vehicle_response_to_roadway_maint

This data flow is used within the Manage Maintenance and Construction function and contains a list of the maintenance and construction fleet vehicles available for routine roadway maintenance use. The data flow consists of the following data items each of which is defined in its own DDE:

fleet_vehicle_available.

Additional Sizing Assumptions:
None

fleet_vehicle_response_to_winter_maint

This data flow is used within the Manage Maintenance and Construction function and contains a list of the maintenance and construction fleet vehicles available for winter maintenance use. The data flow consists of the following data items each of which is defined in its own DDE:

fleet_vehicle_available.

Additional Sizing Assumptions:
None

fmcas-m_and_c_administrative_information

This data flow is sent from the Maintenance and Construction Administrative Systems to the Manage Maintenance and Construction function. It provides input on administrative information, including requests and project requirements from contract administration, and other information that could affect scheduling of maintenance and construction activities. .

Additional Sizing Assumptions:
SIZE=64;

fmcas-m_and_c_personnel_information

This data flow is sent from the Maintenance and Construction Administrative Systems to the Manage Maintenance and Construction function. It provides input on maintenance and construction personnel, including training qualifications and special certifications. .

Additional Sizing Assumptions:
SIZE=64;

fmcas-m_and_c_regulations

This data flow is sent from the Maintenance and Construction Administrative Systems to the Manage Maintenance and Construction function. It provides input on regulations and rules, including restrictions that could affect scheduling of maintenance and construction activities. .

Additional Sizing Assumptions:
SIZE=64;

fmcas-resupply_response

This data flow is sent from Maintenance and Construction Administrative Systems to the Manage Maintenance and Construction function, and contains the purchase request status for equipment and consumables resupply. .

Additional Sizing Assumptions:
SIZE=32;

fmccp-alert_and_threats_for_field_personnel

This data flow is sent from the Maintenance and Construction Center Personnel to provide notification to field personnel of potential threats or a major emergency such as a natural or man-made disaster, civil emergency, or child abduction. .

Additional Sizing Assumptions:
SIZE=32;

fmccp-archive_commands

This data flow is sent from the maintenance and construction center personnel to the Manage Maintenance and Construction function and contains data administration commands used to control the archival of data by the Manage Archived Data function. These commands may include the data that is to be archived, how the data is processed, how the data is stored, data elements that are deleted, etc. .

Additional Sizing Assumptions:
SIZE=256;

fmccp-dispatch_and_routing_info

This data is used within the Manage Maintenance and Construction function and contains dispatch and routing parameters (destination, preferences, constraints, etc.) from the center personnel for use by the Maintenance and Construction vehicle fleet manager. The data flow consists of the following data items each of which is defined in its own DDE:

dispatch_info_for_m_and_c_fleet
+ routing_parameters_for_m_and_c_fleet.

Additional Sizing Assumptions:
None

fmccp-emergency_plan_response

This data flow is sent from the Maintenance and Construction Center Personnel and is used to coordinate disaster response and recovery plans and evacuation plans with maintenance and construction. .

Additional Sizing Assumptions:
SIZE=128;

fmccp-env_data_collection_inputs

This data flow contains inputs from the maintenance and construction center personnel defining how the environmental and weather data will be collected and formatted. .

Additional Sizing Assumptions:
SIZE=32;

fmccp-env_data_processing_inputs

This data flow represents inputs made by the maintenance and construction center personnel to define the environmental data processing parameters. .

Additional Sizing Assumptions:
SIZE=64;

fmccp-env_info_dissemination_inputs

This data flow represents inputs made by the maintenance and construction center personnel to define parameters for the distribution of environmental and road weather data to organizations outside the manage maintenance and construction function. .

Additional Sizing Assumptions:
SIZE=64;

fmccp-env_sensor_control_inputs

This data flow from the Maintenance and Construction Center Personnel provides control commands for an environmental sensor, which is identified by its station id and sensor identity.

station_id
+ sensor_identity
+ environmental_sensor_control.

Additional Sizing Assumptions:
None

fmccp-infrastructure_sensor_control

This data flow provides control commands from the Maintenance and Construction Center Personnel for an infrastructure monitoring sensor at the roadway. It consists of the following data item which is defined in its own DDE:

infrastructure_sensor_control_of_roadside_devices.

Additional Sizing Assumptions:
None

fmccp-mdss_parameter_input

This data flow is sent from the Maintenance and Construction Center Personnel and contains data processing commands used to control the Maintenance Decision Support System function. These commands may include additional data inputs to the function, parameters guiding how the data is to be processed, assigned weightings to various input data, timeframe of data to be processed, how the data is to be distributed, etc. .

Additional Sizing Assumptions:
SIZE=256;

fmccp-request_for_schedule

This data flow is sent from the Maintenance and Construction Center Personnel and contains a request for information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. .

Additional Sizing Assumptions:

SIZE=4;

fmccp-request_m_and_c_tracking_display_update

This data flow is sent by the Maintenance and Construction Center Personnel to request an update of the current digitized map data used as a background for maintenance and construction vehicle locations for tracking purposes. The map data produced as a result of this request will be provided by a specialist supplier. .

Additional Sizing Assumptions:
SIZE=4;

fmccp-resource_response

This data flow is sent from the Maintenance and Construction Center Personnel and is used to respond to official requests for maintenance and construction resources. It contains a list of the resources granted. Although primarily used to respond to requests made on behalf of other agencies (such as emergency, traffic, etc.), it could also be used to assist in prioritizing the use of resources within maintenance and construction. .

Additional Sizing Assumptions:
SIZE=128;

fmccp-vehicle_systems_control

This data flow is sent by the Maintenance and Construction Center Personnel to provide control information to the systems on-board a maintenance and construction vehicle. It includes control data to support materials dispersion and other functions, depending upon the type of vehicle. .

Additional Sizing Assumptions:
SIZE=32;

fmccp-wz_collection_and_distribution_parameters

This data flow is sent by the Maintenance and Construction Center Personnel and contains parameters to define how work zone data is collected, formatted, aggregated, or filtered for distribution within the maintenance and construction function as well as to various organizations outside of the function. It consists of the following data items each of which is defined in its own DDE:

work_zone_data_collection_parameters
+ work_zone_info_distribution_parameters.

Additional Sizing Assumptions:
None

fmccp-wz_device_control

This data flow represents control actions for work zone devices performed by the Maintenance and Construction Center Personnel. These control action are generated to control work zone devices that are on a maintenance and construction vehicle, or traffic surveillance or driver information devices that have been installed in work zones or maintenance areas. The devices controlled include closed circuit TV, dynamic message signs, highway advisory radio, intrusion detection devices, and intrusion alert devices. These actions may cover things such as device configuration or device reset. For the cctv the control flow also includes pan, tilt, and zoom plus other picture controls. This data flow consists of data from the following data items which are defined in their own DDE:

work_zone_device_operator_control
+ center_control_of_on_board_work_zone_devices.

Additional Sizing Assumptions:

None

fmcfp-crew_movements

This data flow contains information about movements of maintenance and construction field personnel within a work zone area. The information could represent the physical presence of the personnel which is monitored by a sensor either at the roadside or on-board a maintenance and construction vehicle, or it could represent an actual communications of information from the personnel to the vehicle. In the latter case the information could include location and some form of personnel identifier that would allow transmitting of a warning to the specific personnel based upon detection of intrusion at a certain point within a work zone. .

Additional Sizing Assumptions:
SIZE=8;

fmcfp-dispatch_response

This data flow is sent from the Maintenance and Construction Field Personnel to acknowledge that the vehicle has been dispatched and is on its way to the location identified in the dispatch request. .

Additional Sizing Assumptions:
SIZE=4;

fmcfp-environmental_sensor_control

This data flow is sent from the Maintenance and Construction Field Personnel and provides control commands for an environmental sensor located on a maintenance and construction vehicle. .

Additional Sizing Assumptions:
SIZE=32;

fmcfp-field_equip_repair_status

This data flow is input by the Maintenance and Construction Field Personnel to report the current status of field equipment. .

Additional Sizing Assumptions:
SIZE=128;

fmcfp-m_and_c_activity_status

This data flow is sent from the Maintenance and Construction Field Personnel and contains current maintenance and construction status information such as work data, operator status, vehicle status, and crew status to the vehicle fleet manager. .

Additional Sizing Assumptions:
SIZE=32;

fmcfp-vehicle_systems_control

This data flow is sent from the Maintenance and Construction Field Personnel and is used by the maintenance and construction vehicle operator to control the systems on-board the vehicle. It includes control data to support materials dispersion and other functions, depending upon the type of vehicle. .

Additional Sizing Assumptions:
SIZE=32;

fmcfp-work_zone_status_inputs

This data flow contains inputs on work zone status provided by the maintenance and construction field personnel on-board a maintenance and construction vehicle. These inputs include field personnel status, vehicle status, and work activity status. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=64;

fm-incident_details

This data flow contains data about an incident that has been reported by a member of the traveling public to the media by mechanisms that are outside of ITS, e.g. car phone. The data flow consists of the following items each of which is defined in its own DDE:

media_identity
+ incident_location
+ incident_start_time
+ incident_duration
+ incident_severity
+ incident_type.

Additional Sizing Assumptions:
None

fm-incident_information

This data flow contains data about an incident that has been reported by a member of the traveling public to the media by mechanisms that are outside of ITS, e.g. car phone. The data flow consists of the following items each of which is defined in its own DDE:

media_identity
+ incident_location
+ incident_start_time
+ incident_duration
+ incident_severity
+ incident_type.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=4;

fmmc-crossing_closure_schedule

This data flow is sent to the Review and Classify Possible Incidents process within the Manage Traffic function from the multimodal crossing terminator. It contains the scheduled time and duration for which a crossing must close to vehicular traffic to permit the passage of the alternate flow, e.g., river traffic, aircraft, etc.

crossing_closure_schedule.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=5;

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. .

Additional Sizing Assumptions:
SIZE=5;

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. .

Additional Sizing Assumptions:
SIZE=64;

fm-transit_schedule_deviations_request

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

Additional Sizing Assumptions:
SIZE=64;

fm-transit_vehicle_deviations_request

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

Additional Sizing Assumptions:
SIZE=64;

fm-traveler_information

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

Additional Sizing Assumptions:
SIZE=1024;

fmtsp-air_services

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

Additional Sizing Assumptions:
SIZE=4096000;

fmtsp-ferry_services

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

Additional Sizing Assumptions:
SIZE=4096000;

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.

Additional Sizing Assumptions:
None

fmtsp-multimodal_service_confirmation

This data flow is sent from the multimodal transportation service provider to the Provide Driver and Traveler Services function and contains confirmation that a previous request from a traveler for an alternate mode service has been accepted. .

Additional Sizing Assumptions:
SIZE=40;

fmtsp-non_motorized_services

This data flow from the multimodal transportation service provider to the Provide Driver and Traveler Services function contains details of the non-motorized transportation services available to move travelers. It consists of the following data items each of which is defined in its own DDE:

bike_route_information
+ walkway_information
+ skyway_information
+ multi_use_trail_information.

Additional Sizing Assumptions:
None

fmtsp-rail_services

This data flow is sent from the multimodal transportation service provider to the Provide Driver and Traveler Services function and contains details of the heavy rail services (i.e. those which do not form part of a transit operation) available to move travelers. .

Additional Sizing Assumptions:
SIZE=4096000;

fmtsp-transit_service_data

This data flow is sent from the multimodal transportation service provider to the Manage Transit function and contains details of the services provided by the multimodal transportation service providers. The data is intended

for use by other processes in the calculation of new routes and services and the identification of transfer points [between the local transit service and an adjacent transit service] for the local regular transit operation. This data flow will enable two groups of services to be coordinated for the benefit of the traveler. This data flow contains the following item which is defined in its own DDE:

transit_transfer_cluster_list.

Additional Sizing Assumptions:
None

fmtsp-transit_transfer_clusters

This data flow is sent from the multimodal transportation service provider to the Provide Driver and Traveler Services function and contains details on transit transfer clusters. This data flow consists of the following data item which is defined in its own DDE:

transit_transfer_cluster_list.

Additional Sizing Assumptions:
None

fmup-demand_display_update

This data flow is sent from the map update provider to the Manage Demand facility within the Manage Traffic function. It contains the digitized map data for displays that can be used as background for the output of data on traffic and travel demand levels. .

Additional Sizing Assumptions:
SIZE=2048000;

fmup-emergency_display_update

This data flow is sent from the map update provider to the Manage Emergency Services function. It contains the digitized map data for displays that can be used as the background for the output of data on incidents and emergencies to the emergency system operator. .

Additional Sizing Assumptions:
SIZE=2048000;

fmup-emergency_route_map_update

This data flow is sent from the map update provider to the Manage Emergency Services function. It contains the digitized map data for displays that can be used to plan routes for emergency vehicles. .

Additional Sizing Assumptions:
SIZE=2048000;

fmup-fleet_map_update

This data flow is sent from the map update provider to the Manage Commercial Vehicles function and contains digitized map data to be used for route generation and as a background to displays of services requested by the commercial vehicle fleet manager. .

Additional Sizing Assumptions:
SIZE=8192000;

fmup-incident_display_update

This data flow is sent from the map update provider to the Display and Update Incident Data facility within the Manage Traffic function. It contains the digitized map data for displays that can be used as background for the output of data on current incidents or planned events. .

Additional Sizing Assumptions:
SIZE=2048000;

fmup-m_and_c_display_update

This data flow is sent from the map update provider to the Manage Maintenance and Construction function. It contains the digitized map data for displays that can be used as the background for the output of data on maintenance and construction activities and vehicle locations for fleet management. .

Additional Sizing Assumptions:
SIZE=2048000;

fmup-m_and_c_route_map_update

This data flow is sent from the map update provider to the Manage Maintenance and Construction function. It contains the digitized map data for displays that can be used to plan routes for maintenance and construction vehicles. .

Additional Sizing Assumptions:
SIZE=2048000;

fmup-map_archive_data

This data flow from the Map Update Provider to the Manage Archived Data function contains a catalog and details of map data that may be of interest to the archive data users systems that cannot be obtained directly from ITS functions. This data flow contains the following items each of which is defined in its own DDE:

map_archive_catalog
+ map_data_for_archive.

Additional Sizing Assumptions:
None

fmup-other_routes_map_data

This data flow is sent by the map update provider to the Provide Driver and Traveler Services function and contains a new copy of the digitized map data used by the process that selects other, i.e. non-vehicle and non-transit, routes.
.

Additional Sizing Assumptions:
SIZE=10240000;

fmup-pollution_display_update

This data flow is sent from the map update provider to the Manage Emissions facility within the Manage Traffic function. It contains the digitized map data for displays that can be used as background for the output of data on the levels of various atmospheric pollutants. .

Additional Sizing Assumptions:
SIZE=2048000;

fmup-route_selection_map_data

This data flow is sent by the map update provider to the Provide Driver and Traveler 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 purposes. .

Additional Sizing Assumptions:
SIZE=10240000;

fmup-traffic_display_update

This data flow is sent from the map update provider to the Display and Output Traffic Data facility within the Manage Traffic function. It contains the digitized map data for displays that can be used as background for the output of data on current or predicted traffic levels. .

Additional Sizing Assumptions:
SIZE=2048000;

fmup-transit_map_update

This data flow is sent from the map update provider to the Manage Transit function and contains digitized map data to be used for route generation and as a background to displays of services requested by the transit system operator. .

Additional Sizing Assumptions:
SIZE=8192000;

fmup-traveler_display_update

This data flow is sent from the map update provider to the Provide Driver and Traveler Services function. It contains the digitized map data that can be used as background to displays of traffic, trip and travel information that are output to a kiosk for use by travelers. The data will be different from that sent for output of similar displays at a personal device since the type of display is likely to be different (larger) in this case. .

Additional Sizing Assumptions:
SIZE=2048000;

fmup-traveler_map_update

This data flow is sent from the map update provider to the Provide Driver and Traveler Services function and contains data for a new guidance map to be used by the on-line traveler guidance facility. .

Additional Sizing Assumptions:
SIZE=8192000;

fmup-traveler_map_update_cost

This data flow is sent from the map update provider to the Provide Driver and Traveler Services function and contains the cost for a new navigable map database to be used by the traveler personal on-line guidance facility. .

Additional Sizing Assumptions:
SIZE=5;

fmup-traveler_personal_display_update

This data flow is sent from the map update provider to the Provide Driver and Traveler Services function. It contains the digitized map data that can be used as background to displays of traffic, trip and travel information that

are output to a personal device for use by travelers. The data will be different to that sent for output of similar displays at a kiosk since the type of display is likely to be different (smaller) in this case. .

Additional Sizing Assumptions:
SIZE=1024000;

fmup-traveler_personal_display_update_cost

This data flow is sent from the map update provider to the Provide Driver and Traveler Services function and contains the cost for a new set of digitized map data to be used as the background to displays of traffic and travel information being output by a traveler's personal device. .

Additional Sizing Assumptions:
SIZE=5;

fmup-vehicle_map_update

This data flow is sent from the map update provider to the Provide Driver and Traveler Services function and contains data for a new navigable map database to be used by the on-line vehicle guidance facility. .

Additional Sizing Assumptions:
SIZE=8192000;

fmup-vehicle_map_update_cost

This data flow is sent from the map update provider to the Provide Driver and Traveler Services function and contains the cost for a new navigable map database to be used by the on-line vehicle guidance facility. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=1000000;

focvas-border_clearance

This data flow is sent from other commercial vehicle administration system to the Manage Commercial Vehicle function. It contains the status of the movement of goods across international borders with corresponding trip identification numbers. .

Additional Sizing Assumptions:
SIZE=4;

focvas-credentials

This data flow is sent from other commercial vehicle administration system to the Manage Commercial Vehicle function and contains full credentials information. .

Additional Sizing Assumptions:
SIZE=1024;

focvas-credentials_status

This data flow is sent from other commercial vehicle administration system to the Manage Commercial Vehicle function. It contains information regarding the status of credentials information including registration, licensing, check flags, and electronic screening enrollment data. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=64;

focvas-route_restrictions

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

hazmat_route_restrictions
+ current_asset_restrictions.

Additional Sizing Assumptions:
None

focvas-safety_inspection

This data flow is sent from the other commercial vehicle administration system to the Manage Commercial Vehicle function. It contains a report containing results of commercial vehicle safety inspections. .

Additional Sizing Assumptions:
SIZE=4;

focvas-safety_status

This data flow is sent from the other commercial vehicle administration system to the Manage Commercial Vehicle function. It contains the status of safety information including safety ratings, inspection summaries, and violation summaries. .

Additional Sizing Assumptions:
SIZE=4;

fods-other_data_source_archive_data

This data flow from Other Data Sources to the Manage Archived Data function contains a catalog and details of data that may be of interest to the archive data users systems that cannot be obtained directly from ITS functions or that users of the archive function have requested by imported into the archive. This data flow contains the following items each of which is defined in its own DDE:

other_data_source_catalog
+ user_defined_data_for_archive.

Additional Sizing Assumptions:
None

foem-alert_notification_status

This data flow contains information indicating the status of the alert from the other emergency centers including the information systems that are being used to provide the alert notification. .

Additional Sizing Assumptions:
SIZE=64;

foem-disaster_response_plan_coordination

This data flow is used is used to coordinate disaster response and recovery plans with other emergency management centers. It contains the response from other centers regarding the modified response plan. The data flow consists of the following data item which is defined in its own DDE:

emergency_input_for_disaster
+ oem_preplanned_disaster_response_plan
+ evacuation_status_for_disaster_response
+ emergency_center_identity.

Additional Sizing Assumptions:
None

foem-emergency_resource_request

This flow contains a request from another emergency management center in supporting an incident, disaster, or other emergency. It provides a set of resources that the other emergency management center is planning to utilize and has been told are available for use. The data flow consists of the following data item which is defined in its own DDE:

em_resource_request
+ emergency_center_identity.

Additional Sizing Assumptions:
None

foem-emergency_resource_response

This flow contains a response from another emergency management center for support of an incident, disaster, or other emergency. The data flow consists of the following data item which is defined in its own DDE:

em_resource_response.

Additional Sizing Assumptions:
None

foem-evacuation_information_from_other_em

This flow contains information regarding an evacuation occurring at other emergency management centers. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule
+ emergency_center_identity.

Additional Sizing Assumptions:
None

foem-evacuation_plan_coordination

This data flow is used is used to coordinate evacuation plans with other emergency management centers. It contains the response from other centers regarding the modified evacuation plan. The data flow consists of the following data item which is defined in its own DDE:

emergency_center_identity
+ emergency_evacuation_data
+ evacuation_status_report
+ oem_preplanned_evacuation_plan.

Additional Sizing Assumptions:
None

foem-evacuation_resource_request

This flow contains a request from another emergency management center to support an evacuation. It provides a set of resources that the other emergency management center is planning on utilizing and has been told are available for use. The data flow consists of the following data item which is defined in its own DDE:

em_resource_request
+ emergency_center_identity.

Additional Sizing Assumptions:
None

foem-evacuation_resource_response

This flow contains a response from another emergency management center for support of an evacuation. The data flow consists of the following data item which is defined in its own DDE:

em_resource_response.

Additional Sizing Assumptions:
None

foem-evacuation_status

This data flow contains a status of the response to an evacuation being performed by another emergency management center. It includes information regarding response to requests for assistance in an evacuation. In general it provides information regarding how well the other emergency management center is able to respond to the evacuation, and may be used to improve on the current evacuation plan. .

Additional Sizing Assumptions:
SIZE=48;

foem-incident_command_information_coordination

This data flow contains information about the management of an incident in progress at another emergency management center. It provides the detailed status for an emergency response that is in progress and includes a detailed view of the assets which are deployed for the emergency, the current emergency status and any HAZMAT information not already sent. It contains the following data items each of which are defined in their own DDE:

incident_number

+ emergency_center_identity
+ incident_severity
+ incident_vehicle_status
+ incident_status
+ cf_hazmat_vehicle_information.

Additional Sizing Assumptions:
None

foem-incident_details

This data flow is sent by the other emergency centers to the Manage Emergency Services function and contains data about an incident that is taking place outside the area of operation serviced by the local function. It consists of the following data items each of which is defined in its own DDE:

emergency_center_identity
+ incident_confidence_level
+ incident_location
+ incident_number
+ incident_report_source
+ incident_reported_time
+ incident_description
+ incident_start_time
+ incident_duration
+ incident_severity
+ incident_status
+ incident_traffic_impact
+ incident_type.

Additional Sizing Assumptions:
None

foem-incident_response_coordination

This data flow supports coordination of an incident response between allied response agencies. It supports the coordination of response procedures, status and resources between agencies. It also supports the coordinated hand-off of responsibility for all or part of an emergency response. It consists of the following data items which are defined in their own DDEs:

incident_response_status
+ agency_incident_response_procedures
+ incident_resource_coordination
+ hand_off_coordination
+ staging_area
+ emergency_center_identity.

Additional Sizing Assumptions:
None

foem-mayday_emergency_data

This data flow is sent by the other emergency centers to the Manage Emergency Services function. It contains information about an emergency that was reported by a Mayday system, verified by the Mayday service provider, and determined to require a response from a public safety agency or another authorized responder. It consists of the following data items, each of which is contained in its own DDE:

emergency_request_driver_details

+ emergency_request_vehicle_details
+ mayday_agency_ID
+ driver_status_update
+ vehicle_status_update.

Additional Sizing Assumptions:
None

foem-request_for_emergency_support

This flow contains a request from other emergency management for emergency management to support an emergency event. The data flow consists of the following data items which are defined in their own DDE:

oem_disaster_response_plan
+ emergency_center_identity.

Additional Sizing Assumptions:
None

foem-response_for_emergency_support

This flow contains a status response from other emergency management for emergency management. It informs emergency management of how other emergency management is responding to a request for supporting an emergency event. The data flow consists of the following data items which are defined in their own DDE:

oem_emergency_status_report
+ emergency_center_identity.

Additional Sizing Assumptions:
None

foem-secure_area_sensor_data

This data flow is sent by other emergency centers to the Manage Emergency Services function and contains sensor data from secure areas outside the area of operation serviced by the local function. This flow includes raw data from threat sensors, objection detection sensors, intrusion and motion detection sensors, and infrastructure integrity sensors, as well as data produced by processing that sensor data. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ sensor_identity
+ emergency_center_identity
+ infrastructure_integrity_sensor_data_collected
+ infrastructure_integrity_sensor_processed_data
+ threat_sensor_data_collected
+ threat_sensor_processed_data
+ object_sensor_data_collected
+ object_sensor_processed_data
+ intrusion_motion_sensor_data_collected
+ intrusion_motion_sensor_processed_data}.

Additional Sizing Assumptions:
None

foem-secure_area_surveillance

This data flow is sent by other emergency centers to the Manage Emergency Services function and contains surveillance data from secure areas outside the area of operation serviced by the local function. This flow includes high resolution video images, audio, and data produced by processing those images and audio. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image
+ secure_audio
+ secure_area_images
+ secure_video_image_data
+ secure_audio_data
+ emergency_center_identity}.

Additional Sizing Assumptions:
None

foem-threat_analysis_results

This data flow is sent to the Manage Emergency Services function from other emergency centers and contains detailed results of threat analysis performed on data collected from secure areas outside the area serviced by the local function. The secure area may include those frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and emergency centers outside the local jurisdiction. This data flow includes the analysis input parameters, the sources of the collected data and timestamps, as well as the final analysis results. .

Additional Sizing Assumptions:
SIZE=64;

foem-threat_info

This data flow is sent to the Manage Emergency Services function from other emergency centers and contains information about threats detected in the transportation network outside the area of operation serviced by the local function. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ emergency_center_identity
+ threat_severity
+ geographical_area
+ threat_duration}.

Additional Sizing Assumptions:
None

foem-transportation_system_status_for_disaster

This data flow consists of a report of the current status of the transportation system. The data flow consists of the following data item which is defined in its own DDE:

disaster_transportation_system_status
+ emergency_center_identity.

Additional Sizing Assumptions:
None

foem-transportation_system_status_for_evacuation

This data flow consists of a report of the current status of the transportation system. The data flow consists of the following data item which is defined in its own DDE:

evacuation_transportation_system_status
+ emergency_center_identity.

Additional Sizing Assumptions:
None

foem-verified_image_match

This data flow is sent by other emergency centers to the Manage Emergency Services function and contains the results of image matching analysis from secure areas outside the area of operation serviced by the local function. This flow indicates whether an image has matched an image in the database of known images. The image data is obtained from areas frequented by travelers, and from areas typically away from travelers. The data flow consists of the following data items each of which is defined in its own DDE:

timestamp
+ emergency_center_identity
+ station_id
+ transit_vehicle_location
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ image_match_confirmation
+ image_id.

Additional Sizing Assumptions:
None

foem-wide_area_alert_notification

This data flow is sent to the Manage Emergency Services function from other emergency centers and contains information about wide area alert notifications detected in the notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be sent to the traffic operations personnel to be on the look out for certain conditions. It consists of the following data items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:
None

foisp-data_supply

This data flow is sent to the Provide Driver and Traveler 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.

Additional Sizing Assumptions:
None

foisp-request_data

This data flow is sent to the Provide Driver and Traveler 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. .

Additional Sizing Assumptions:
SIZE=2;

foisp-traffic_data

This data flow contains a complete (or partial) set of the traffic data which has been created through fusion of available data sources and sent from another ISP (e.g. a wholesaler of information). This includes current, long term (historical) and predicted link data as well as incident data. The data flow consists of the following items each of which is defined in its own DDE:

source_identity
+ current_data_for_retrieval
+ long_term_data_for_retrieval
+ planned_events
+ predictive_data_for_retrieval.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=16;

foisp-transit_data

This data flow is used to provide data on the current state of transit operations (regarding both incidents and transit vehicle schedule status) and is sent from another ISP (e.g. a wholesaler of information). The data flow consists of the following items each of which is defined in its own DDE:

transit_running_data_for_advisory_output
+ transit_incident_data
+ traveler_transit_information_advisory_data
+ traveler_transit_information_broadcast_data.

Additional Sizing Assumptions:
None

foisp-transit_information_request

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

Additional Sizing Assumptions:
SIZE=16;

fomcm-env_sensor_data

This data flow provides outputs from a set of environment sensors that are monitored by another maintenance and construction organization. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}.

Additional Sizing Assumptions:
None

fomcm-m_and_c_plan_feedback

This data flow is used by the Manage Maintenance and Construction function to receive feedback regarding proposed work plans from other maintenance and construction facilities whose areas of operation are outside those of the local facility. It contains comments and suggested changes to proposed maintenance and construction work plan schedules and activities. This information will be used to influence the work schedule to minimize impact to other system operations and the transportation system. .

Additional Sizing Assumptions:
SIZE=32;

fomcm-m_and_c_work_plans

This data flow is used by the Manage Maintenance and Construction function to receive data from other maintenance and construction facilities whose areas of operation are outside those of the local facility. It contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans.

Additional Sizing Assumptions:
None

fomcm-resource_coordination_data

This data flow represents information about resources that is to be shared between maintenance and construction facilities located in different geographic areas. Included in this data flow are requests for use and availability of those resources. .

Additional Sizing Assumptions:
SIZE=4096;

fomcm-road_weather_info

This data flow contains environmental and road weather information that has been formatted for distribution from one maintenance and construction organization to another. The data may be filtered or aggregated prior to this formatting. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

fomcm-roadway_maint_status

This data flow is used by the Manage Maintenance and Construction function to receive data from other maintenance and construction facilities whose areas of operation are outside those of the local facility. It contains information summarizing the current roadway maintenance activities. This also includes maintenance fleet operations affecting the road network such as winter maintenance (snow plow schedules and status). The data flow consists of the following data item which is defined in its own DDE:

current_roadway_maintenance_status.

Additional Sizing Assumptions:
None

fomcm-work_zone_images

This data flow contains analog or digitized video images of a work zone that are provided to the Manage Maintenance and Construction function from another maintenance and construction agency .

Additional Sizing Assumptions:
SIZE=IMAGE_LARGE;

fomcm-work_zone_info

This data flow contains a summary of maintenance and construction work zone activities affecting the road network including the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. This information also includes work zone resources availability and status. .

Additional Sizing Assumptions:
SIZE=256;

fomcv-crew_movements

This data flow is sent from another maintenance and construction vehicle and contains the location of a maintenance and construction field personnel within a work zone area and some form of personnel identifier that would allow transmitting of a warning to the specific personnel based upon detection of intrusion at a certain point within a work zone. The data flow may also contain a maintenance and construction vehicle identifier to allow transmission of warnings to a specific vehicle. .

Additional Sizing Assumptions:
SIZE=12;

fomcv-env_conditions

This data flow contains environmental sensor data collected on-board another maintenance and construction vehicle. The data may represent the actual sensor output, or may be a filtered or processed version for display to the Maintenance and Construction Field Personnel. It consists of the following data items each of which is defined in its own DDE:

sensor_identity
+ environment_sensor_output.

Additional Sizing Assumptions:
None

fomcv-vehicle_operational_data

This data flow is received from other vehicles to the Manage Maintenance and Construction function and contains information about the maintenance and construction activity performed by the vehicle. Operational data includes the operational state of the maintenance equipment (e.g., blade up/down, spreader pattern) and a record of the actual work performed. It is used to coordinate efforts between maintenance and construction vehicles. It consists of the following data items each of which is defined in its own DDE:

vehicle_id_for_mcv
+ operational_data_for_mcv.

Additional Sizing Assumptions:
None

fomcv-work_zone_intrusion_alert_on_board

This data flow contains a time stamped indication that a work zone intrusion alert has been generated by a device on-board a maintenance and construction vehicle. The data flow could also identify the form in which the alert was given (e.g. audible warning, visual warning, or in-vehicle warning) .

Additional Sizing Assumptions:
SIZE=8;

fomcv-work_zone_intrusion_detection_on_board

This data flow contains the time stamped output of an on-board intrusion detection device indicating that an intrusion has been detected. .

Additional Sizing Assumptions:
SIZE=8;

fomcv-work_zone_intrusion_warning_to_crew

This data flow contains a warning sent from another maintenance and construction vehicle to a receiving maintenance and construction vehicle that an intrusion into the work zone has been detected. The data flow may contain the identity of the sending vehicle, the identity of the receiving vehicle, the location of the intrusion, and the identity of the maintenance and construction field personnel that are at risk due to the location and nature of the intrusion. .

Additional Sizing Assumptions:
SIZE=16;

fop-parking_coordination_data

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

Additional Sizing Assumptions:
SIZE=32;

formatted_archive_catalog

This data flow contains a catalog of the data that has been imported and formatted by the Get Archive Data function. This catalog is based on the catalog information sent from the various sources of ITS or non-ITS data. This data flow consists of the following items each of which is defined in its own DDE:

traffic_archive_catalog
+ parking_archive_catalog
+ emissions_archive_catalog
+ cv_archive_catalog
+ transit_archive_catalog
+ em_archive_catalog
+ traveler_archive_catalog
+ toll_archive_catalog
+ multimodal_archive_catalog
+ weather_archive_catalog
+ intermodal_archive_catalog
+ m_and_c_archive_catalog
+ map_archive_catalog
+ other_data_source_catalog.

Additional Sizing Assumptions:
None

formatted_archive_data

This data flow contains the data as received from ITS and non-ITS sources and formatted for storage by the Manage Archive function. This data flow consists of the following items each of which is defined in its own DDE:

formatted_roadside_data
+ formatted_traffic_data
+ formatted_parking_data
+ formatted_emissions_data
+ formatted_cv_data
+ formatted_transit_data
+ formatted_em_data
+ formatted_traveler_data
+ formatted_toll_data
+ formatted_multimodal_data
+ formatted_weather_data
+ formatted_intermodal_data
+ formatted_m_and_c_data
+ formatted_map_data
+ formatted_user_defined_data.

Additional Sizing Assumptions:
None

formatted_archive_data_attributes

This data flow within the Manage Archived Data function contains the meta data to describe the data that was formatted for archival by the Get Archive Data function. This could include updates to the meta data attributes of individual types of data to describe any reformatting done to the data as it was imported, any cleansing activities, or any other methods applied to the incoming data such as aggregation or summarization. This data flow consists of the following items each of which is defined in its own DDE:

formatted_roadside_data_attributes
+ formatted_traffic_data_attributes
+ formatted_parking_data_attributes
+ formatted_emissions_data_attributes
+ formatted_cv_data_attributes
+ formatted_transit_data_attributes
+ formatted_em_data_attributes
+ formatted_traveler_data_attributes

+ formatted_toll_data_attributes
+ formatted_multimodal_data_attributes
+ formatted_weather_data_attributes
+ formatted_intermodal_data_attributes
+ formatted_m_and_c_data_attributes
+ formatted_map_data_attributes
+ formatted_user_defined_data_attributes.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:

None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

formatted_m_and_c_data

This data flow contains maintenance and construction information that may be of interest to archive data users. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow contains the following items each of which is defined in its own DDE:

m_and_c_activity_status_for_archive
+ m_and_c_activity_schedule_for_archive
+ m_and_c_roadway_maint_needs_for_archive
+ m_and_c_maint_resource_needs_for_archive
+ m_and_c_winter_maint_needs_for_archive
+ work_zone_data_for_archive
+ field_device_status_for_archive
+ auto_treatment_system_status_for_archive
+ infrastructure_data_for_archive.

Additional Sizing Assumptions:
None

formatted_m_and_c_data_attributes

This data flow contains meta data that describes the construction and maintenance information that may be of interest to archive data users systems. The meta data attributes may have been altered and updated by the Get Archive Data function. This data flow contains the following items each of which is defined in its own DDE:

m_and_c_activity_status_for_archive_attributes
+ m_and_c_activity_schedule_for_archive_attributes
+ m_and_c_roadway_maint_needs_for_archive_attributes
+ m_and_c_maint_resource_needs_for_archive_attributes
+ m_and_c_winter_maint_needs_for_archive_attributes
+ work_zone_data_for_archive_attributes
+ field_device_status_for_archive_attributes
+ auto_treatment_system_status_for_archive_attributes
+ infrastructure_data_for_archive_attributes.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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
+ sensor_attributes.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

formatted_transit_data

This data flow contains details of transit operational data for release to the data archive. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. This data flow is made up of the following items each of which is defined in its own DDE:

transit_operational_data_for_archive
+ transit_services_for_deployment
+ traveler_payments_transactions
+ transit_fare_transactions
+ transit_route_assign_for_archive
+ bad_transit_collected_fare_payment
+ bad_transit_roadside_fare_payment
+ bad_transit_vehicle_fare_payment
+ transit_vehicle_operator_info_for_archive
+ transit_incident_info_for_archive
+ transit_emergency_data_for_archive
+ transit_technician_info
+ transit_vehicle_maintenance_info
+ paratransit_service_data_for_archive
+ transit_vehicle_data_for_archive.

Additional Sizing Assumptions:
None

formatted_transit_data_attributes

This data flow contains the meta data to describe the transit operational data for release to the data archive. The meta data attributes may have been altered and updated by the Get Archive Data function. This data flow is made up of the following items each of which is defined in its own DDE:

transit_operational_data_attributes.

Additional Sizing Assumptions:
None

formatted_traveler_data

This data flow contains details of all of the service requests and confirmations input by the traveler via a personal device or kiosk, route guidance data, vehicle guidance probe data, parking lot data, trip requests and traveler rideshare requests and data, other-routes data, road network use data, and traveler payment transaction data. This data may have been formatted or altered by the Get Archive Data function. The meta data attributes will be updated to reflect any alterations to the original data. It contains the following data items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:
None

formatted_traveler_data_attributes

This data flow contains the meta data that describes the driver and traveler information being archived. The meta data attributes may have been altered and updated by the Get 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
+ traveler_info_payments_transactions_attributes
+ parking_lot_data_for_archive_attributes
+ trip_request_for_archive_attributes
+ rideshare_for_archive_attributes
+ usage_for_archive_attributes.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

fors-device_control

This data flow is received from the Other RS terminator and contains control information for an indicator (e.g., ramp meter controller, intersection controller). It is used for coordination between peer indicators or for information transfer between devices functioning in a hierarchical arrangement. In this case, the Other RS terminator represents the indicator from which control commands are being sent. This data flow consists of the following items each of which is defined in its own DDE:

f_other_rw_ic_control_to_ic
+ f_other_rw_fc_control_to_fc.

Additional Sizing Assumptions:
None

fors-device_status

This data flow is received from the Other RS terminator and contains status and fault information for an indicator (e.g., ramp meter controller, intersection controller). The data flow can contain the actual state of operation of the indicators. It is used for coordination between peer indicators or for information transfer between devices functioning in a hierarchical arrangement. In this case, the Other RS terminator represents the indicator from which status is being sent. This data flow consists of the following items each of which is defined in its own DDE:

f_other_rw_ic_status_to_ic
+ f_other_rw_fc_status_to_fc.

Additional Sizing Assumptions:
None

fors-roadway_info_data_from_devices

This data flow is received from the Other RS terminator and contains data from a device (automated road treatment function, barrier system, or safeguard system) for display on a roadway information device. The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. In this case, the Other RS terminator represents the automated device. This data flow consists of the following items each of which is defined in its own DDE:

f_other_rw_dms_auto_treat_data_from_roadway

+ f_other_rw_dms_barrier_activated_from_roadway
+ f_other_rw_dms_safeguard_activated_from_roadway.

Additional Sizing Assumptions:
None

fors-roadway_info_data_from_sensors

This data flow is received from the Other RS terminator and contains sensor data from a roadside sensor (environmental, speed warning, or individual speed sensor) for display on a roadway information device. The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. In this case, the Other RS terminator represents the sensor. This data flow consists of the following items each of which is defined in its own DDE:

f_other_rw_env_sensor_data_to_dms
+ f_other_rw_speed_warning_to_dms
+ f_other_rw_individual_vehicle_speed_to_dms.

Additional Sizing Assumptions:
None

fors-sensor_control

This data flow is received from the Other RS terminator and provides control commands for a roadside sensor (environmental or traffic). In this case, the Other RS terminator represents a roadside or freeway indicator (e.g., intersection controller, ramp meter controller), or an automated road treatment device that sends the sensor control commands. This data flow consists of the following items each of which is defined in its own DDE:

f_other_rw_env_sensor_control_by_auto_treat_device
+ f_other_rw_ic_control_to_traffic_sensor
+ f_other_rw_fc_control_to_traffic_sensor.

Additional Sizing Assumptions:
None

fors-sensor_data

This data flow is received from the Other RS terminator and provides data from a roadside sensor (environmental, traffic, or work zone intrusion). In this case, the Other RS terminator represents the sensor from which a roadside or freeway indicator (e.g., intersection controller, ramp meter controller), or an automated road treatment device, or a work zone intrusion alert device receives the sensor data. This data flow consists of the following items each of which is defined in its own DDE:

f_other_rw_env_sensor_data_for_auto_treat_device
+ f_other_rw_traffic_sensor_data_to_ic
+ f_other_rw_traffic_sensor_data_to_fc
+ f_other_rw_work_zone_intrusion_detection.

Additional Sizing Assumptions:
None

fors-sensor_status

This data flow is received from the Other RS terminator and provides status and fault data from a roadside traffic sensor. In this case, the Other RS terminator represents the sensor from which a roadside or freeway indicator (e.g.,

intersection controller, ramp meter controller) receives the sensor status. This data flow consists of the following items each of which is defined in its own DDE:

f_other_rw_traffic_sensor_status_to_ic
+ f_other_rw_traffic_sensor_status_to_fc.

Additional Sizing Assumptions:
None

fota-toll_charges_reconciliation_data

This data is sent from the Other Toll Administration terminator to the Process Electronic Toll Payment function to support the reconciliation of toll charges between agencies. .

Additional Sizing Assumptions:
SIZE=200;

fota-toll_pricing_data

This data is sent from the Other Toll Administration terminator to the Process Electronic Toll Payment function to share toll pricing data between separately managed toll agencies. .

Additional Sizing Assumptions:
SIZE=200;

fotm-data_request

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

other_TMC_data_request
+ local_TMC_incidents_request
+ tmc_identity.

Additional Sizing Assumptions:
None

fotm-traffic_control_and_status

This data flow is sent from the other traffic centers to the Manage Traffic function and contains status and control data which is being transferred from one (remote) Traffic Management Center (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
+ other_roadway_information_data
+ other_roadway_information_status
+ tmc_identity.

Additional Sizing Assumptions:
None

fotm-transfer_data

This data flow is sent from the other traffic centers to the Manage Traffic function and contains the data which is being transferred from one (remote) Traffic Management Center (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
+ disaster_traffic_data_from_other_traffic_management
+ evacuation_traffic_data_from_other_traffic_management
+ tmc_identity.

Additional Sizing Assumptions:
None

fotm-transfer_other_TMC_data_FB

This data flow is sent from Other Traffic Management centers to the Manage Traffic function and contains the data which is being transferred from one (remote) Traffic Management Center (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:

fotm-transfer_data
+ fotm-traffic_control_and_status.

Additional Sizing Assumptions:
None

fotrm-transit_fare_data_coordination

This data flow is sent by Other Transit Management centers to the Manage Transit function and contains data from the other transit center about services which have an interface into the area covered by services from the local center. The data flow consists of the following data items each of which is defined in its own DDE:

fare_reconciliation
+ trmc_identity
+ transit_fare_data.

Additional Sizing Assumptions:
None

fotrm-transit_service_data

This data flow is sent by Other Transit Management centers to the Manage Transit function and contains data from the other transit center about services which have an interface into the area covered by services from the local center. The data flow consists of the following data items each of which is defined in its own DDE:

trmc_identity
+ traffic_incident_data_for_transit
+ transit_transfer_point_list
+ transit_transfer_cluster_list
+ transit_vehicle_deviations_details
+ transit_vehicle_passenger_data.

Additional Sizing Assumptions:

None

fotrm-transit_traveler_information

This data flow is sent by Other Transit Management centers to the Manage Transit function and contains data from the other transit center about services which have an interface into the area covered by services from the local center. The data flow consists of the following data items each of which is defined in its own DDE:

trmc_identity
+ transit_services_for_advisory_data
+ transit_vehicle_advisory_eta.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=256;

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. .

Additional Sizing Assumptions:
SIZE=confirmation_flag;

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=16;

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 traveler making a parking lot reservation. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=128;

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. .

Additional Sizing Assumptions:
SIZE=8;

fp-pedestrian_images

This data flow is used within the Manage Traffic function. It contains visual information (analog data) about pedestrians waiting to cross, or approaching the crossing points, or in the crosswalk of roads and highways from which pedestrian surveillance data can be obtained by image processors within ITS. .

Additional Sizing Assumptions:
SIZE=IMAGE_LARGE;

fre-environmental_conditions

This data flow is sent from the roadside environment and contains analog data. This data is used by sensors within the ITS functions to determine environmental roadside conditions such as air temperature, wind speed, humidity and precipitation, fog, ice, snow, rain, etc. that are affecting the road and highway network served by the function. .

Additional Sizing Assumptions:
SIZE=32;

fre-environmental_conditions_at_roadway

This data flow represents the environmental roadside conditions such as air temperature, wind speed, humidity and precipitation, fog, ice, snow, rain, etc. that are affecting the road and highway network served by the function. These conditions are sensed by environmental sensors on board a maintenance and construction vehicle. .

Additional Sizing Assumptions:
SIZE = 128;

freeway_control_request_for_detours

This data flow contains request for freeway controls to provide detour routes in support of emergency operations during a disaster. The request could be for a long term or short term detour. It might also include a request to remove vehicle restrictions such as HOV on facilities. .

Additional Sizing Assumptions:
SIZE=48;

freeway_control_response_for_detours

This data flow contains response from freeway management controls on the status of setting up and providing detour routes in support of emergency operations during a disaster. .

Additional Sizing Assumptions:
SIZE=48;

freight_alarm

This data flow contains the details of security related incidents involving freight equipment. These include notifications of significant route deviations and breach or tamper events. The data flow consists of the following data items each of which is defined in its own DDE:

freight_equipment_id
+ freight_equipment_location
+ incident_type
+ time
+ date.

Additional Sizing Assumptions:
None

freight_assignment_data

This data flow contains the freight equipment number assigned to a specific route. The data flow consists of the following data items each of which is defined in its own DDE:

freight_equipment_number
+ cv_route_number.

Additional Sizing Assumptions:
None

freight_booking_information

This data flow contains the information supplied when freight transportation is booked. It includes information about the shipper, consignee, commodities, pick-up and drop-off locations for freight equipment. For border

crossing applications, a trip identification number is provided. It consists of the following items each of which is defined in its own DDE:

cv_trip_identity
+ freight_shipment_information
+ freight_equipment_number.

Additional Sizing Assumptions:
None

freight_breach

This data flow contains information regarding a breach or tamper event of freight equipment. It identifies the type of breach and the current location of freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

freight_equipment_id
+ freight_breach_data
+ location_identity
+ time.

Additional Sizing Assumptions:
None

freight_breach_data

This data flow contains information regarding a breach or tamper event of freight equipment. It identifies the type of breach and location within the freight equipment the breach or tampering has occurred .

Additional Sizing Assumptions:
SIZE=32;

freight_breach_for_rs

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

freight_breach.

Additional Sizing Assumptions:
None

freight_breach_warning

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

freight_breach.

Additional Sizing Assumptions:
None

freight_cargo_data

This data describes the type and quantity of cargo, planned delivery schedule and route restrictions. It contains data from which the following can be determined: cargo type - solid, liquid, powder, flammable liquid, livestock, etc., hazmat cargo - details of the HAZMAT designation (if any) for the cargo, cargo weight - the actual weight of the

cargo including its packaging, i.e. what weight the vehicle is actually carrying, cargo packaging - the type of container in which the cargo is held, e.g. closed ISO container, tank, open container, refrigerated container, etc. .

Additional Sizing Assumptions:
SIZE = 64;

freight_equipment_id

This data flow contains the identification information for freight equipment. .

Additional Sizing Assumptions:
SIZE=2;

freight_equipment_info

This data flow contains container, trailer or chassis information in support of freight equipment operations, maintenance, and integrity. The data flow consists of the following data items each of which is defined in its own DDE:

freight_operations
+ freight_maintenance
+ freight_equipment_location
+ freight_integrity
+ cargo_data
+ cargo_safety_status.

Additional Sizing Assumptions:
None

freight_equipment_location

This data flow contains location data from freight equipment used by many processes. The data flow consists of the following data item that is defined in its own DDE:

freight_equipment_id
+ location_identity.

Additional Sizing Assumptions:
None

freight_equipment_maint_status

This data flow contains the repair status of freight equipment at the repair facility. .

Additional Sizing Assumptions:
SIZE=2;

freight_equipment_maintenance_availability

This data flow contains information on when freight equipment will be available for preventive and corrective maintenance. .

Additional Sizing Assumptions:
SIZE=2;

freight_equipment_number

This data flow contains the character code that represents the owner's code, equipment category identifier, and serial number. .

Additional Sizing Assumptions:
SIZE=2;

freight_fleet_status

This data flow provides a fleet-freight manager the status of a fleet of freight equipment, including its availability, maintenance schedule and current location. .

Additional Sizing Assumptions:
SIZE=16;

freight_incident_alert

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

freight_breach
+ freight_route_deviation_warning.

Additional Sizing Assumptions:
None

freight_incident_response

This data flow contains a freight manager's response to a security incident involving freight equipment. .

Additional Sizing Assumptions:
SIZE=4;

freight_integrity

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

freight_equipment_id
+ freight_integrity_data.

Additional Sizing Assumptions:
None

freight_integrity_data

This data flow contains freight equipment data from which a breach or tamper incident can be evaluated. This includes door position (open/close), radiation levels, light sensor readings (internal to the freight equipment), temperature readings, seal status, biological and chemical sensor readings, etc. .

Additional Sizing Assumptions:
SIZE=4;

freight_integrity_monitoring_parameters

This data flow contains parameters against which a freight equipment's integrity data is monitored. The parameters setup the acceptable limits which if exceeded, may indicate a breach or tamper event. .

Additional Sizing Assumptions:
SIZE=2;

freight_location_information

This data flow contains location data from freight equipment used to support dispatching of freight equipment. The data flow consists of the following data item that is defined in its own DDE:

freight_equipment_location.

Additional Sizing Assumptions:
None

freight_maint_data

This data store contains the maintenance data for freight equipment used to plan preventive and corrective maintenance. The data flow consists of the following data items which are defined in its own DDE:

freight_equipment_id
+ freight_maintenance_data.

Additional Sizing Assumptions:
None

freight_maintenance

This data flow contains the data regarding wear items on a specific piece of freight equipment, such as brakes, tires, etc., from which maintenance plans can be determined. The data flow consists of the following data items each of which is defined in its own DDE:

freight_equipment_id
+ freight_maintenance_data.

Additional Sizing Assumptions:
None

freight_maintenance_data

This data flow contains data regarding wear items on freight equipment, such as brakes, tires, etc., from which maintenance plans are developed. .

Additional Sizing Assumptions:
SIZE=2;

freight_manager_updates

This data flow contains instructions from a freight manager in support of managing a fleet of freight equipment. This includes allocating freight equipment, coordinating maintenance activities and coordinating routes. .

Additional Sizing Assumptions:
SIZE=2;

freight_operational_data

This data flow contains information regarding freight equipment availability to support freight fleet dispatching. It provides information regarding load status (i.e. trailer empty), chassis status (i.e. chassis bare) and other indicators which determine the availability of freight equipment. .

Additional Sizing Assumptions:
SIZE=4;

freight_operations

This data flow contains information regarding the availability for a specific piece of freight equipment. It provides information regarding load status (i.e. trailer empty), chassis status (i.e. chassis bare) and other indicators which determine the availability of freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

freight_equipment_id
+ freight_operational_data.

Additional Sizing Assumptions:
None

freight_route_deviation_warning

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

freight_equipment_id
+ freight_equipment_location
+ freight_route_monitoring_parameters
+ time
+ date.

Additional Sizing Assumptions:
None

freight_route_monitoring_parameters

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

route_monitoring_parameters.

Additional Sizing Assumptions:
None

freight_routes

This data store contains the route plan for freight equipment. The data flow consists of the following data item which is defined in its own DDE:

cvo_route_for_freight.

Additional Sizing Assumptions:
None

freight_shipment_information

This data flow contains the data used to book freight transportation. This includes information about the shipper, consignee, commodities, pick-up and drop-off locations, and unique reference numbers .

Additional Sizing Assumptions:
SIZE=128;

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. .

Additional Sizing Assumptions:
SIZE=32;

fre-roadside_data

This data flow is sent by the roadway environment to the Provide Vehicle Monitoring and Control function. It contains analog data from which sensors on-board the vehicle can determine the physical conditions such as fog, ice, snow, rain, etc. at the road or highway. .

Additional Sizing Assumptions:
SIZE=32;

fre-roadway_characteristics

This data flow is sent from the roadside environment to the Manage Traffic function and contains information relating to the physical roadway characteristics. These include the roadway geometry, and type of roadway surface (paved, gravel, etc.) .

Additional Sizing Assumptions:
SIZE=32;

fre-roadway_characteristics_for_mcv

This data flow is sent from the roadside environment to the Manage Maintenance and Construction function and contains information relating to the physical roadway characteristics. These include the roadway geometry, and type of roadway surface (paved, gravel, etc.) .

Additional Sizing Assumptions:
SIZE=64;

fre-roadway_infrastructure_characteristics

This data flow is sent from the roadside environment to the Manage Maintenance and Construction function and contains information relating to the physical characteristics of the roadway infrastructure, including pavement, bridges, culverts, signs, etc. .

Additional Sizing Assumptions:
SIZE=64;

fro-disaster_response_plan_coordination

This data flow is used is used to coordinate disaster response and recovery plans with rail operations. It contains the response from rail regarding the modified response and recovery plan. The data flow consists of the following data item which is defined in its own DDE:

rail_disaster_response_plan.

Additional Sizing Assumptions:
None

fro-evacuation_plan_coordination

This data flow is used is used to coordinate evacuation plans with rail operations. It contains the response from rail regarding the modified preplanned evacuation plan. The data flow consists of the following data item which is defined in its own DDE:

rail_evacuation_plan.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1024;

From_Alerting_and_Advisory_Systems

This data is sent from the Alerting and Advisory Systems terminator and contains the following data item which is defined in its own DDE:

faas-threat_support_data
+ faas-image_search_data
+ faas-confirm_image_match
+ faas-wide_area_alert_notifications_and_advisories
+ faas-alerts_and_advisories_for_traffic
+ faas-alerts_and_advisories_for_transit
+ faas-alerts_and_advisories_for_maint
+ faas-alerts_and_advisories_for_threat_analysis
+ faas-alerts_and_advisories_for_cvo
+ faas-alerts_and_advisories_for_freight.

Additional Sizing Assumptions:
None

fro-m_and_c_plan_feedback_from_rail

This data flow is sent from the Rail Operations to the Manage Maintenance and Construction function. It contains comments and suggested changes to proposed maintenance and construction work plan schedules and activities. This information will be used to influence the work schedule to minimize impact to other system operations and the transportation system. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

From_Asset_Management

This data flow is sent from Asset Management and contains inventory and repair needs information about transportation assets such as pavement, bridges, signs, etc. for use in scheduling asset maintenance and placing restrictions on asset usage (such as height, width, or weight). Inventory updates from Asset Management are also included in this flow for archival. It consists of the following data items each of which is defined in its own DDE:

fam-asset_maint_and_repair_needs
+ fam-asset_inventory
+ fam-asset_restrictions
+ fam-asset_archive_data
+ fam-asset_damage.

Additional Sizing Assumptions:
None

From_Basic_Commercial_Vehicle

This data flow is sent from the non-ITS functions on a commercial vehicle to the Manage Commercial Vehicles functions. It contains data that has been collected on-board a commercial vehicle for processing by sensors before being used within the functions. The data flow consists of the following items each of which is defined in its own DDE:

fbcv-brake_condition
+ fbcv-distance_traveled
+ fbcv-driver_safety_status
+ fbcv-driver_status
+ fbcv-vehicle_characteristics
+ fbcv-vehicle_identification
+ fbcv-vehicle_identity
+ fbcv-vehicle_safety_status
+ fbcv-vehicle_security_status

+ fbcv-weight.

Additional Sizing Assumptions:
None

From_Basic_MC_Vehicle

This data flow is sent from the non-ITS systems on-board a maintenance and construction vehicle and it contains analog data that can be monitored by on-board vehicle sensors to provide a number of digital data readings for use elsewhere within ITS. This data includes information about treatment materials stored on-board, vehicle diagnostics and operating status data about the mileage, brake system, engine wear, tire wear, and the like. It consists of the following data items each of which is defined in its own DDE:

fbmcv-basic_mcv_measures
+ fbmcv-materials_status.

Additional Sizing Assumptions:
None

From_Basic_Transit_Vehicle

This data flow is sent from the non-ITS functions on a transit vehicle to the Manage Transit function and contains data that has been collected on-board the vehicle, such as vehicle type and availability, maintenance record, and current vehicle performance data. It consists of the following data items each of which is defined in its own DDE:

fbtv-availability
+ fbtv-vehicle_maintenance_data
+ fbtv-vehicle_trip_data.

Additional Sizing Assumptions:
None

From_Basic_Vehicle

This data flow is sent to the Provide Vehicle Control and Monitoring functions. It contains analog data that can be monitored by on-board vehicle sensors to provide a number of digital data readings for use elsewhere within ITS. The data applies to any type of vehicle, i.e. it is not particular to one type such as commercial vehicles, transit vehicles, etc. It consists of the following data items each of which is defined in its own DDE:

fbv-brake_servo_response
+ fbv-crash_sensor_data
+ fbv-diagnostics_data
+ fbv-driver_safety_status
+ fbv-steering_servo_response
+ fbv-throttle_servo_response
+ fbv-vehicle_attitude_data
+ fbv-vehicle_condition
+ fbv-vehicle_headway
+ fbv-vehicle_identity
+ fbv-vehicle_lane_position
+ fbv-vehicle_motion_data
+ fbv-vehicle_on_ahs_lane
+ fbv-vehicle_proximity_data
+ fbv-vehicle_safety_status
+ fbv-vehicle_security_status
+ fbv-vehicle_speed.

Additional Sizing Assumptions:
None

From_Care_Facility

This data flow is sent from the Care Facility Terminator to the Manage Emergency Services Function. It contains information about the location, specialized services, quality of care, waiting time, number of rooms available, and emergency room status of hospitals or emergency care providers. The information could also come from a third party quality of care provider. The data contained in each of these flows will enable the provide emergency route function to route emergency vehicles to the closest emergency care provider with the services required for patients. The data flow consists of the following data item which is defined in its own DDE:

fcf-care_facility_status_response
+ fcf-care_facility_vehicle_status_response
+ fcf-care_facility_status_for_isp
+ fcf-care_facility_status_response_for_disaster.

Additional Sizing Assumptions:
None

From_Commercial_Vehicle_Driver

This data flow is sent from the commercial vehicle driver to the Manage Commercial Vehicles function and contains data (or a request for data) that has been inputted by a driver. It consists of the following data items each of which is defined in its own DDE:

fcvd-activity_request
+ fcvd-carrier_number
+ fcvd-driver_characteristics
+ fcvd-driver_data_input
+ fcvd-driver_general_message
+ fcvd-driver_input_type
+ fcvd-driver_response
+ fcvd-enrollment_payment_request
+ fcvd-enrollment_request
+ fcvd-driver_number
+ fcvd-other_data_input
+ fcvd-request_routing_instructions
+ fcvd-request_tag_data_output
+ fcvd-route_data
+ fcvd-route_request
+ fcvd-trip_identification_number
+ fcvd-vehicle_number.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

From_DMV

This data flow is sent from the Department of Motor Vehicles to several processes within the ITS function in response to a request for vehicle registration data to be used in calculating tolls, verification of emissions compliance, etc. This data flow consists of the following data items each of which is defined by its own DDE:

fdmv-parking_lot_violation_state_identity
+ fdmv-parking_lot_violation_vehicle_registration
+ fdmv-toll_violation_state_identity
+ fdmv-toll_violation_vehicle_registration
+ fdmv-traffic_violation_state_identity
+ fdmv-traffic_violation_vehicle_registration
+ fdmv-emissions_violation_state_identity
+ fdmv-emissions_violation_vehicle_registration.

Additional Sizing Assumptions:
None

From_Driver

This data flow is sent from the Driver and contains driver commands to the vehicle, including automatic vehicle control, and requests for in-vehicle services such as guidance, financial transaction requests, emergency requests, and requests for travel advisory information. It consists of the following data items each of which is defined in its own DDE:

fd-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.

Additional Sizing Assumptions:
None

From_Emergency_Personnel

This data flow is sent from the emergency personnel to the Manage Emergency Services function. It consists of the following data items each of which is defined in its own DDE:

fep-emergency_dispatch_acknowledge
+ fep-incident_status
+ fep-incident_command_inputs.

Additional Sizing Assumptions:
None

From_Emergency_System_Operator

This data flow is sent by the emergency system operator to the Manage Emergency Services function and contains emergency services allocation data input by an emergency services operator, or an override to the current automatic allocation of emergency services to an incident. It consists of the following data items each of which is defined in its own DDE:

feso-emergency_action_log_request
+ feso-emergency_allocation_override
+ feso-emergency_data_input
+ feso-emergency_data_output_request
+ feso-emergency_display_update_request
+ feso-emergency_response
+ feso-archive_commands
+ feso-image_processing_parameters
+ feso-secure_area_sensor_surveillance_control
+ feso-alerts_and_advisories.

Additional Sizing Assumptions:
None

From_Emergency_Telecommunications_System

This data flow is sent by the Emergency Telecommunications System to the Manage Emergency Services function. The terminator includes specialized systems and services that exist to provide an immediate response to emergencies that are reported by travelers, drivers and the general public, e.g. 911, E911, the new RESCUE service, etc. The data flow includes the following item which is defined in its own DDE:

fets-incident_data_FB.

Additional Sizing Assumptions:
None

From_Emissions_Operations_Personnel

This data flow is input by emissions operations personnel to the Provide Emissions Management process in the Manage Traffic function. It is used to request the output of pollution data or to provide new parameters for use by processes in the Traffic Incident, Demand and Emissions Management facilities. 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:

femo-pollution_data_information_request
+ femo-pollution_parameter_updates.

Additional Sizing Assumptions:
None

From_Enforcement_Agency

This data flow is a response from an enforcement agency to a request for data from several process in ITS.

fea-cv_enforcement_agency_response
+ fea-enforcement_parameters
+ fea-speed_sensor_control
+ fea-violator_information.

Additional Sizing Assumptions:
None

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
+ fe-roadside_pollutant_levels.

Additional Sizing Assumptions:
None

From_Equipment_Repair_Facility

This data flow is sent from the Equipment Repair Facility to the Manage Maintenance and Construction function. It contains information about the current maintenance status of the maintenance and construction vehicle fleet and associated equipment, including a record of all maintenance performed. It consists of the following data items each of which is defined in its own DDE:

ferf-current_fleet_maintenance_status
+ ferf-fleet_maintenance_record
+ ferf-equipment_repair_status
+ ferf-equipment_status_for_tracking.

Additional Sizing Assumptions:
None

From_Event_Promoters

This data flow is sent from Event Promoters to the Provide Driver and Traveler Services, Manage Emergency Services, and Manage Traffic functions and includes information about upcoming events to be logged as possible incidents or forwarded to travelers. It contains the following data items each of which is defined in its own DDE:

fevp-event_information
+ fevp-planned_event_data
+ fevp-event_information_for_travelers.

Additional Sizing Assumptions:
None

From_Financial_Institution

This data flow is sent from the Financial Institution to the Provide Electronic Payment Services function and contains data about requests for payments that have been successfully made or otherwise. It consists of the following items each of which is defined in its own DDE:

ffi-bad_charges_payment_updates
+ ffi-bad_fare_payment_updates
+ ffi-bad_toll_payment_updates
+ ffi-confirm_charges_payment
+ ffi-confirm_fare_payment
+ ffi-confirm_toll_payment
+ ffi-cv_payment_confirm
+ ffi-driver_map_payment_confirm
+ ffi-other_services_payment_confirm
+ ffi-registration_payment_confirm
+ ffi-traveler_display_payment_confirm

+ ffi-traveler_map_payment_confirm
+ ffi-traveler_other_services_payments_confirm
+ ffi-traveler_rideshare_payment_confirm
+ ffi-archive_payment_confirm
+ ffi-archive_analysis_payment_confirm.

Additional Sizing Assumptions:
None

From_Fleet_Freight_Manager

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

fffm-carrier_number
+ fffm-driver_number
+ fffm-enrollment_payment_request
+ fffm-enrollment_request
+ fffm-freight_data_input
+ fffm-incident_response
+ fffm-other_data_input
+ fffm-preclearance_data
+ fffm-request_driver_route_instructions
+ fffm-request_on_board_vehicle_data
+ fffm-request_tag_data_output
+ fffm-roadside_activity_report_request
+ fffm-route_data
+ fffm-route_function_request
+ fffm-trip_identity
+ fffm-update_driver_route_instructions
+ fffm-vehicle_number
+ fffm-freight_incident_response.

Additional Sizing Assumptions:
None

From_Freight_Equipment

This data flow contains information received from freight equipment, which includes intermodal freight container, intermodal chassis and truck trailers. This data flow consists of the following data items each of which is defined in its own DDE:

ffe-breach_warning
+ ffe-breach_warning_for_cv
+ ffe-cargo_info_for_cv
+ ffe-cargo_information
+ ffe-freight_breach
+ ffe-freight_equipment_info
+ ffe-integrity_data
+ ffe-integrity_data_for_cv
+ ffe-location_data
+ ffe-location_data_for_cv
+ ffe-lock_tag_data
+ ffe-lock_tag_data_for_cv
+ ffe-maintenance_data
+ ffe-maintenance_data_for_cv
+ ffe-operational_data

+ ffe-operational_data_for_cv
+ ffe-sensed_hazmat.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

From_Intermodal_Freight_Depot

This data flow sent from the Intermodal Freight Depot terminator contains data about the movement of freight by means that may include methods other than commercial vehicles, e.g. heavy rail, air, sea, river, etc. This data flow consists of the following items each of which is defined in its own DDE:

fifd-freight_data
+ fifd-intermodal_archive_data
+ fifd-intermodal_freight_event.

Additional Sizing Assumptions:
None

From_Intermodal_Freight_Shipper

This data flow is sent from the Intermodal Freight Shipper to the Manage Commercial Vehicles function. It contains the trip identification information used to identify a specific cross-border shipment and booking information for freight transportation. This data flow consists of the following data items each of which is defined in its own DDE:

fifs-breach_response
+ fifs-freight_data
+ fifs-trip_id_number
+ fifs-trip_identification_number
+ fifs-book_transportation.

Additional Sizing Assumptions:
None

From_ISP_Operator

This data flow is sent from the ISP operator to the Provide Driver and Traveler Services function. It may contain updates of parameters used in wide area information broadcast, yellow pages services, trip planning and route selection, or requests for the output of these parameters, or requests for updates of the actual digitized map data used by the route selection processes. 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
+ fispo-yellow_pages_operator_inputs.

Additional Sizing Assumptions:
None

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.
.

Additional Sizing Assumptions:
SIZE= location_identity;

From_Map_Update_Provider

This data flow is sent to several ITS functions by the map update provider. It contains new digitized map data for displays, on-line vehicle and traveler guidance plus system evaluation, transit and commercial vehicle route generation and static data preparation. The map update provider is a specialist supplier of this type of data serving some or all of the country. The display data is used as the background to outputs of traffic, incident, maintenance and construction activities, transit routes and pollution data, while the guidance data is used by the on-line vehicle and traveler guidance facilities. Map data may also include data to be imported into the Manage Archived Data function. The data flow contains the following data items each of which is defined in its own DDE:

fmup-demand_display_update
+ fmup-emergency_display_update
+ fmup-fleet_map_update
+ fmup-incident_display_update
+ fmup-other_routes_map_data
+ fmup-pollution_display_update
+ fmup-route_selection_map_data
+ fmup-traffic_display_update
+ fmup-transit_map_update
+ fmup-traveler_display_update
+ fmup-traveler_map_update
+ fmup-traveler_map_update_cost
+ fmup-traveler_personal_display_update
+ fmup-traveler_personal_display_update_cost
+ fmup-vehicle_map_update
+ fmup-vehicle_map_update_cost
+ fmup-map_archive_data
+ fmup-emergency_route_map_update
+ fmup-m_and_c_display_update
+ fmup-m_and_c_route_map_update.

Additional Sizing Assumptions:
None

From_MC_Administrative_Systems

This data flow is sent from the Maintenance and Construction Administrative Systems to the Manage Maintenance and Construction function. It provides input on administrative information, personnel qualifications, purchase order

resupply status, and rules and regulations that could affect scheduling of maintenance and construction activities. The data flow consists of the following data items each of which is defined in its own DDE:

fmcas-m_and_c_administrative_information
+ fmcas-resupply_response
+ fmcas-m_and_c_personnel_information
+ fmcas-m_and_c_regulations.

Additional Sizing Assumptions:
None

From_MC_Center_Personnel

This data flow sends the inputs and control information from the Maintenance and Construction Center Personnel to the Manage Maintenance Construction function. It includes data to control environmental data collection, fleet vehicle dispatching and routing, archival of data, maintenance and decision support system operation, and requests for maintenance activities schedules. The data flow consists of the following data items each of which is defined in its own DDE:

fmccp-archive_commands
+ fmccp-dispatch_and_routing_info
+ fmccp-env_data_collection_inputs
+ fmccp-env_data_processing_inputs
+ fmccp-env_info_dissemination_inputs
+ fmccp-env_sensor_control_inputs
+ fmccp-mdss_parameter_input
+ fmccp-request_for_schedule
+ fmccp-resource_response
+ fmccp-wz_device_control
+ fmccp-emergency_plan_response
+ fmccp-alert_and_threats_for_field_personnel
+ fmccp-request_m_and_c_tracking_display_update
+ fmccp-vehicle_systems_control
+ fmccp-infrastructure_sensor_control
+ fmccp-wz_collection_and_distribution_parameters.

Additional Sizing Assumptions:
None

From_MC_Field_Personnel

This data flow sends the inputs and control information from the Maintenance and Construction Field Personnel to the Manage Maintenance and Construction function. It includes personnel input of status related to repair of field equipment and other maintenance and work zone activities, responses to dispatch information, and crew personnel tracking.

The data flow consists of the following data items each of which is defined in its own DDE:
fmcfp-field_equip_repair_status
+ fmcfp-m_and_c_activity_status
+ fmcfp-dispatch_response
+ fmcfp-work_zone_status_inputs
+ fmcfp-crew_movements
+ fmcfp-vehicle_systems_control
+ fmcfp-environmental_sensor_control.

Additional Sizing Assumptions:
None

From_Media

This data flow is sent from the Media to the Manage Traffic, Manage Transit, and Provide Driver and Traveler Services functions. It provides input of data regarding incidents identified by the Media and traveler information, as well as requests for incident or traffic information from transit, traffic, emergency, and information provider agencies. 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-traveler_information
+ fm-emergency_information_request
+ fm-transit_incident_information_request
+ fm-transit_schedule_deviations_request
+ fm-transit_vehicle_deviations_request.

Additional Sizing Assumptions:
None

From_Multimodal_Crossings

This data flow is sent from multimodal crossings (e.g. drawbridges, ferries) to the Manage Traffic function. It contains data about the need for a Multi-modal Crossing to close prohibiting the passage of vehicular traffic. This data flow consists of the following data items each of which is defined in its own DDE:

fmmc-crossing_close_time
+ fmmc-crossing_close_duration
+ fmmc-crossing_status_for_roads
+ fmmc-crossing_status_for_highways
+ fmmc-crossing_closure_schedule.

Additional Sizing Assumptions:
None

From_Multimodal_Transportation_Service_Provider

This data flow is sent from the multimodal transportation service provider to the Provide Driver and Traveler Services, Manage Transit, and Manage Archived Data functions, and contains details of the services available to move travelers by means other than road vehicles (e.g. heavy rail, air, sea, river, bike routes, etc.) and their respective transfer points. It consists of the following data items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

From_Other_CVAS

This data flow is sent from the other commercial vehicle administration system to the Manage Commercial Vehicles function and contains border clearance, safety, credentials, and fee information about commercial vehicles located within its jurisdictional boundaries. This data flow consists of the following data items each of which is defined in its own DDE:

focvas-border_clearance
+ focvas-data_table
+ focvas-credentials
+ focvas-credentials_status
+ focvas-route_restrictions
+ focvas-safety_inspection
+ focvas-safety_status.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

From_Other_Emergency_Management

This data flow is sent by the other emergency centers to the Manage Emergency Services function and contains information about incidents that are taking place outside the area of operation serviced by the local function. It consists of the following data item which is defined in its own DDE:

foem-incident_details
+ foem-incident_response_coordination
+ foem-mayday_emergency_data
+ foem-verified_image_match
+ foem-threat_info
+ foem-wide_area_alert_notification
+ foem-secure_area_surveillance
+ foem-secure_area_sensor_data
+ foem-threat_analysis_results
+ foem-alert_notification_status
+ foem-request_for_emergency_support
+ foem-response_for_emergency_support
+ foem-disaster_response_plan_coordination
+ foem-evacuation_information_from_other_em

+ foem-evacuation_plan_coordination
+ foem-transportation_system_status_for_disaster
+ foem-transportation_system_status_for_evacuation
+ foem-evacuation_status
+ foem-evacuation_resource_request
+ foem-evacuation_resource_response
+ foem-incident_command_information_coordination
+ foem-emergency_resource_response
+ foem-emergency_resource_request.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

From_Other_MCM

This data flow is sent by other maintenance and construction facilities to the Manage Maintenance and Construction function and contains data about geographic areas of operation that are outside those of the local facility. It consists of the following data items each of which is defined in its own DDE:

fomcm-resource_coordination_data
+ fomcm-m_and_c_plan_feedback
+ fomcm-m_and_c_work_plans
+ fomcm-roadway_maint_status
+ fomcm-env_sensor_data
+ fomcm-road_weather_info
+ fomcm-work_zone_images
+ fomcm-work_zone_info.

Additional Sizing Assumptions:
None

From_Other_MCV

This data flow is sent by other maintenance and construction vehicles to vehicles within the Manage Maintenance and Construction function and contains data about geographic areas of operation that are outside those of the local facility. The data flow consists of the following data items each of which is defined in its own DDE:

fomcv-vehicle_operational_data
+ fomcv-work_zone_intrusion_detection_on_board
+ fomcv-work_zone_intrusion_alert_on_board

+ fomcv-work_zone_intrusion_warning_to_crew
+ fomcv-crew_movements
+ fomcv-env_conditions.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

From_Other_RS

This data flow is received from the Other RS terminator and is used to control sensors and transfer data from other sensors, to receive data for roadway information systems (e.g., dynamic message signs), and to control roadside indicator devices such as intersection controllers and ramp meter controllers. It consists of the following data items each of which is defined in its own DDE:

fors-roadway_info_data_from_devices
+ fors-roadway_info_data_from_sensors
+ fors-sensor_data
+ fors-sensor_status
+ fors-sensor_control
+ fors-device_status
+ fors-device_control.

Additional Sizing Assumptions:
None

From_Other_Toll_Administration

This data is sent from the Other Toll Administration terminator to the Process Electronic Toll Payment function. It contains the following data items each of which is defined in its own DDE:

fota-toll_pricing_data
+ fota-toll_charges_reconciliation_data.

Additional Sizing Assumptions:
None

From_Other_Traffic_Management

This data flow is sent by Other Traffic Management to the Manage Traffic function and contains traffic data about geographic areas of operation that are outside those of the local center. It consists of the following data items each of which is defined in its own DDE:

fotm-data_request
+ fotm-transfer_other_TMC_data_FB.

Additional Sizing Assumptions:

None

From_Other_Transit_Management

This data flow is sent by the Other Transit Management centers to the Manage Transit function and contains data from the other transit centers. It consists of the following data items each of which is defined in its own DDE:

fotrm-transit_traveler_information
+ fotrm-transit_fare_data_coordination
+ fotrm-transit_service_data.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=512;

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.

Additional Sizing Assumptions:
None

From_Pedestrians

This data flow contains data from pedestrians that indicates their need to have the road or freeway closed to traffic as a temporary measure while they cross. This data is sent to the Provide Traffic Surveillance facility of the Manage Traffic function and contains the following data items each of which is defined in its own DDE:

fp-pedestrian_images
+ fp-pedestrian_data.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=16;

From_Rail_Operations

This data flow is sent from a railroad operated operations center (or centers) to the ITS Manage Traffic and Manage Maintenance and Construction functions. It contains information about scheduled and/or planned railroad activity that may be relevant to ITS traffic management (e.g. train schedules through busy corridors, maintenance schedules for railroad owned and maintained grade crossing equipment, etc.). This is typically informational data and is not required for timely operation of grade crossing protection and safety devices. It is however the source of data for use in route planning, alternate route determination, railroad incident notifications, and as a factor in maintenance and construction work plan scheduling, etc. This data flow consists of the following data items each of which is defined in its own DDE:

fro-train_schedules
+ fro-maintenance_schedules
+ fro-incident_notification
+ fro-m_and_c_plan_feedback_from_rail
+ fro-railroad_schedules
+ fro-rail_incident_response_status
+ fro-disaster_response_plan_coordination
+ fro-evacuation_plan_coordination
+ fro-rail_system_status_for_disaster
+ fro-rail_system_status_for_evacuation
+ fro-rail_incident_information.

Additional Sizing Assumptions:
None

From_Roadway_Environment

This data flow is sent from the roadway environment to the Provide Vehicle Monitoring and Control, Manage Maintenance and Construction, and Manage Traffic functions. It contains analog data about the environment actually around the roadway itself covering such things as emissions, fog, ice, snow, etc. It contains the following data items each of which is defined in its own DDE:

fre-physical_conditions
+ fre-roadside_data
+ fre-environmental_conditions
+ fre-roadway_characteristics
+ fre-roadway_characteristics_for_mcv
+ fre-roadway_infrastructure_characteristics
+ fre-environmental_conditions_at_roadway.

Additional Sizing Assumptions:
None

From_Secure_Area_Environment

This data flow is sent from the secure area environment to the Manage Emergency Services function and includes video images, audio, and area characteristics (biological, chemical, radiological, motion, presence, etc.) that are monitored by surveillance equipment (such as a closed circuit televisions and audio equipment), and sensors. The environment being monitored could include areas frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) or areas typically away from travelers (i.e., bridges, tunnels, and other infrastructure). This data flow consists of the following data items each of which is defined in its own DDE:

fsae-area_image
+ fsae-area_audio
+ fsae-area_characteristics
+ fsae-area_image_for_remote_traveler
+ fsae-area_audio_for_remote_traveler
+ fsae-area_characteristics_for_remote_traveler
+ fsae-area_image_for_transit_vehicle
+ fsae-area_audio_for_transit_vehicle
+ fsae-area_characteristics_for_transit_vehicle.

Additional Sizing Assumptions:
None

From_Shelter_Providers

This data flow is sent from the Shelter Providers terminator and includes shelter location, availability, type, and other related information pertaining to one or more shelters operated within a region. It contains the following data item each of which is defined in its own DDE:

fsp-shelter_information
+ fsp-shelter_information_to_travelers.

Additional Sizing Assumptions:
None

From_Storage_Facility

This data flow is sent from the Storage Facility to the Manage Maintenance and Construction function. It provides inventory data regarding types and quantities of materials and equipment available at the storage facility. The data flow consists of the following data items each of which is defined in its own DDE:

fsf-materials_status
+ fsf-equipment_availability
+ fsf-equipment_availability_for_fleet_manager
+ fsf-equipment_status_for_tracking.

Additional Sizing Assumptions:
None

From_Surface_Transportation_Weather_Service

This data flow consists of information provided by a Surface Transportation Weather Service and includes the current and predicted road and weather conditions associated with the transportation system, including data from environmental sensors belonging to that service. This flow also includes control data for sensors. This data flow contains the following items each of which is defined in its own DDE:

fstws-env_sensor_data
+ fstws-env_sensor_data_for_traffic
+ fstws-roadway_env_sensor_control
+ fstws-surface_trans_weather_forecasts
+ fstws-surface_trans_weather_observations
+ fstws-trans_weather_archive_data.

Additional Sizing Assumptions:
None

From_Telecom_System_for_Traveler_Info

This data flow is sent from the Telecommunications Systems for Traveler Information terminator and contains a region-specific request from a 511 system for traveler information. This request could represent a single caller's request for information or a request for a batch upload of regional traveler information. It contains the following data items each of which is defined in its own DDE:

ftsti-511_batch_regional_info_request
+ ftsti-511_caller_request.

Additional Sizing Assumptions:
None

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
+ fta-alert_notification_input.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

From_Trade_Reg_Agencies

This data flow is sent from the Trade Regulatory Agencies to the Manage Commercial Vehicles function. It contains support data about vehicles and carriers for the movement of vehicles through states and across borders. The data flow consists of the following data items each of which is defined in its own DDE:

ftra-declaration_information
+ ftra-domestic_transportation_information.

Additional Sizing Assumptions:
None

From_Traffic

This data flow is sent to the Manage Traffic and Manage Maintenance and Construction function. It contains analog data from physical traffic characteristics on roads and highways that can be read by sensors within ITS and translated into volume, speed, pollution levels, and vehicle presence. It consists of the following items each of which is defined in its own DDE:

ftrf-traffic_images

+ ftrf-traffic_data
+ ftrf-vehicle_pollutant_levels
+ ftrf-vehicle_presence.

Additional Sizing Assumptions:
None

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, to control closed circuit television (cctv) systems or safeguard or barrier systems, or to provide new parameters for use by processes in the Traffic Incident, Demand. It also provides information about roadway characteristics (shoulder width, pavement type, speed limit, etc.) 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-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
+ ftop-disaster_response_plan_input
+ ftop-evacuation_plan_input
+ ftop-barrier_safeguard_control_parameters
+ ftop-alert_notification_status
+ ftop-vehicle_signage_input
+ ftop-roadway_info_input
+ ftop-roadway_incident_input.

Additional Sizing Assumptions:
None

From_Transit_System_Operators

This data flow is sent by the transit system operator to the Manage Transit function. It contains acknowledgment of potential incidents, security actions, a request for output of transit fare transaction data, control inputs for video cameras and fare data updates. The data flow consists of the following data items each of which is defined in its own DDE:

ftso-transit_vehicle_maintenance_updates
+ ftso-approved_corrections
+ ftso-archive_commands
+ ftso-coordination_data
+ ftso-disable_transit_vehicle
+ ftso-emergency_plan_response
+ ftso-fare_updates
+ ftso-initiate_service_updates
+ ftso-media_parameter_request

+ ftso-media_parameter_updates
+ ftso-passenger_loading_updates
+ ftso-planning_parameters
+ ftso-planning_parameters_update_request
+ ftso-request_fare_output
+ ftso-request_response_parameter_output
+ ftso-request_transit_vehicle_data
+ ftso-response_parameters
+ ftso-security_action
+ ftso-technician_information_request
+ ftso-technician_information_updates
+ ftso-transit_display_update_request
+ ftso-transit_vehicle_operator_information_request
+ ftso-transit_vehicle_operator_information_updates
+ ftso-transit_vehicle_operator_route_preferences
+ ftso-transit_services_output_request
+ ftso-transit_vehicle_maintenance_information_request
+ ftso-transit_vehicle_maintenance_specs
+ ftso-alert_notification_status.

Additional Sizing Assumptions:
None

From_Transit_Vehicle_Operator

This data flow is sent from the transit vehicle operator. It consists of the following data items each of which is defined in its own DDE:

ftvo-fare_transaction_mode_set_up
+ ftvo-information_updates
+ ftvo-paratransit_status
+ ftvo-request_batch_mode_data_transfer
+ ftvo-request_logon_authentication
+ ftvo-secure_transit_vehicle_emergency_request
+ ftvo-secure_transit_vehicle_surveillance_control
+ ftvo-transit_service_status.

Additional Sizing Assumptions:
None

From_Traveler

This data flow is sent from the traveler to the Provide Driver and Traveler Services function and contains requests for information or guidance from a traveler, 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-destination_at_roadside
+ ft-destination_on_vehicle
+ ft-extra_trip_data
+ ft-guidance_data
+ ft-guidance_map_update_request
+ ft-guidance_request
+ ft-guidance_route_accepted
+ ft-other_services_roadside_request
+ ft-other_services_vehicle_request
+ ft-personal_emergency_request
+ ft-personal_extra_trip_data
+ ft-personal_map_display_update_request

+ ft-personal_trip_planning_requests
+ ft-request_advisory_information
+ ft-remote_emergency_request
+ ft-secure_transit_vehicle_emergency_request
+ ft-transit_information_request
+ ft-traveler_roadside_image
+ ft-traveler_vehicle_image
+ ft-trip_planning_requests.

Additional Sizing Assumptions:
None

From_Traveler_Card

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

ftc-confirm_payment_at_parking_lot
+ ftc-confirm_fare_payment_at_roadside
+ ftc-confirm_fare_payment_on_transit_vehicle
+ ftc-confirm_payment_at_toll_plaza
+ ftc-driver_vehicle_input_credit_identity
+ ftc-parking_tag_data
+ ftc-toll_tag_data
+ ftc-transit_roadside_tag_data
+ ftc-traveler_roadside_input_credit_identity_for_transit
+ ftc-traveler_vehicle_input_credit_identity_for_transit
+ ftc-transit_vehicle_tag_data
+ ftc-traveler_personal_input_credit_identity
+ ftc-traveler_roadside_input_credit_identity
+ ftc-traveler_parking_input_credit_identity
+ ftc-confirm_traveler_parking_payment
+ ftc-traveler_personal_information
+ ftc-traveler_remote_personal_information.

Additional Sizing Assumptions:
None

From_Vehicle_Characteristics

This data flow is sent from the vehicle characteristics terminator. It represents the presence of a vehicle near a sensor, which allows the sensor to create an output that can be used to identify a particular vehicle and its characteristics, such as speed, the number of wheels, size, pollution parameters, etc., for speed monitoring, toll payment and parking lot charging purposes. The sensor may also determine the visible characteristics of a vehicle and use that data to obtain information about speed or toll or parking lot charge violators. .

Additional Sizing Assumptions:
SIZE=1E6;

From_Wayside_Equipment

This data flow represents information received by HRI from railroad maintained and operated wayside interface equipment (track circuits, gate controllers, local connections to centralized sites via railroad communications networks, etc.). This is assumed to be a real-time, or near real-time interface capable of providing direct communications with (or otherwise detecting) approaching trains. This data flow consists of the following data items each of which is defined in its own DDE:

fwe-approaching_train_announcement
+ fwe-train_data
+ fwe-wayside_equipment_status.

Additional Sizing Assumptions:
None

From_Weather_Service

This data flow consists of data that is provided by the Weather Service terminator. The current and forecast weather data items may be organized by geographic area to allow for local variations. This data flow contains the following items each of which is defined in its own DDE:

fws-weather_archive_data
+ fws-current_weather_observations
+ fws-weather_forecasts
+ fws-env_sensor_data
+ fws-env_sensor_data_for_traffic
+ fws-roadway_env_sensor_control.

Additional Sizing Assumptions:
None

From_Yellow_Pages_Service_Providers

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

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

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=HRI_MAINT_PER_DAY{crossing_id+crossing_close_time+crossing_close_duration+1024};

fro-rail_incident_information

This data flow provides detailed incident information gathered by rail at the incident site and contains detailed information which includes the number and extent of injuries, identification of vehicles and people involved, specification of hazardous material, and any other information required to completely and accurately determine the scope and severity of the incident and the required response. The data flow consists of the following data items each of which is defined in its own DDE:

incident_location
+ incident_start_time
+ incident_duration
+ incident_type

+ incident_traffic_impact.

Additional Sizing Assumptions:
None

fro-rail_incident_response_status

This data flow provides the current status of an incident response indicating site management strategies in effect, incident clearance status, the incident command structure that is in place, and points of contact. .

Additional Sizing Assumptions:
SIZE=48;

fro-rail_system_status_for_disaster

This data flow consist of a report of the current status of the rail system as viewed by rail operations for disaster response and recovery. .

Additional Sizing Assumptions:
SIZE=48;

fro-rail_system_status_for_evacuation

This data flow consists of a report of the current status of the rail system as viewed by rail operations during an evacuation. .

Additional Sizing Assumptions:
SIZE=48;

fro-railroad_schedules

This data flow is sent from the Rail Operations to the Manage Maintenance and Construction function. It contains train schedules, maintenance schedules, and other information from the railroad to assist in maintenance and construction activity scheduling. .

Additional Sizing Assumptions:
SIZE=16;

fro-train_schedules

This data flow is used by railroads to provide ITS traffic management functions of train movement schedules that may be pertinent to traffic and route planning, highway maintenance planning, etc. As scheduled information, it may be used to determine the probability of grade crossing blockage by trains and therefore the expected traffic flow rates on specific vehicle routes. Each event would typically be associated with a specific crossing, train identification, a scheduled arrival time and an estimated closure time. .

Additional Sizing Assumptions:
SIZE=HRI_EVENTS_PER_DAY{crossing_id+train_id+crossing_close_time+train_arrival_time};

fsae-area_audio

This data flow is sent from the secure area environment to the Manage Emergency Services function and includes audio input to equipment monitoring a secure area. This environment could include areas typically away from travelers (i.e., bridges, tunnels, and other infrastructure). The data can also be used for incident or threat detection using automatic analysis techniques. .

Additional Sizing Assumptions:

SIZE=IMAGE_LARGE;

fsae-area_audio_for_remote_traveler

This data flow is sent from the secure area environment to the Manage Emergency Services function and includes audio input to equipment monitoring a secure area. This environment could include areas frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, etc.). The data can also be used for incident or threat detection using automatic analysis techniques. .

Additional Sizing Assumptions:
SIZE=IMAGE_LARGE;

fsae-area_audio_for_transit_vehicle

This data flow is sent from the secure area environment to the Manage Emergency Services function and includes audio input to equipment monitoring a secure area. This environment include on-board a transit vehicle. The data can also be used for incident or threat detection using automatic analysis techniques. .

Additional Sizing Assumptions:
SIZE=IMAGE_LARGE;

fsae-area_characteristics

This data flow is sent from the secure area environment to the Manage Emergency Services function and represents characteristics (biological, chemical, radiological, motion, object presence, etc.) that are monitored by sensors and processed for detection of threats or infrastructure integrity. .

Additional Sizing Assumptions:
SIZE=32;

fsae-area_characteristics_for_remote_traveler

This data flow is sent from the secure area environment to the Manage Emergency Services function and represents characteristics (biological, chemical, radiological, motion, object presence, etc.) that are monitored by sensors and processed for detection of threats or infrastructure integrity. .

Additional Sizing Assumptions:
SIZE=32;

fsae-area_characteristics_for_transit_vehicle

This data flow is sent from the secure area environment to the Manage Emergency Services function and represents characteristics (biological, chemical, radiological, motion, object presence, etc.) that are monitored by sensors and processed for detection of threats or infrastructure integrity. .

Additional Sizing Assumptions:
SIZE=32;

fsae-area_image

This data flow is sent from the secure area environment to the Manage Emergency Services function. It represents video images typically input to a closed circuit television (cctv) monitoring a secure area. This environment could include areas typically away from travelers (i.e., bridges, tunnels, and other infrastructure). The data can also be used for incident or threat detection using automatic analysis techniques. .

Additional Sizing Assumptions:
SIZE=IMAGE_LARGE;

fsae-area_image_for_remote_traveler

This data flow is sent from the secure area environment to the Manage Emergency Services function. It represents video images typically input to a closed circuit television (cctv) monitoring a secure area. This environment could include areas frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, etc.). The data can also be used for incident or threat detection using automatic analysis techniques. .

Additional Sizing Assumptions:
SIZE=IMAGE_LARGE;

fsae-area_image_for_transit_vehicle

This data flow is sent from the secure area environment to the Manage Emergency Services function. It represents video images typically input to a closed circuit television (cctv) monitoring a secure area. This environment includes on-board a transit vehicle. The data can also be used for incident or threat detection using automatic analysis techniques. .

Additional Sizing Assumptions:
SIZE=IMAGE_LARGE;

fsf-equipment_availability

This data flow is sent from the Storage Facility to the Manage Maintenance and Construction function and contains descriptive information about the types, quantities, and status of the maintenance and construction equipment available at the facility. .

Additional Sizing Assumptions:
SIZE=64;

fsf-equipment_availability_for_fleet_manager

This data flow is sent from the Storage Facility to the Manage Maintenance and Construction function and contains descriptive information about the types, quantities, and status of the maintenance and construction equipment available at the facility to assist the fleet manager in scheduling operations. .

Additional Sizing Assumptions:
SIZE=64;

fsf-equipment_status_for_tracking

This data flow is sent from the Storage Facility to the Manage Maintenance and Construction function and contains data about the types, quantities, and status of the maintenance and construction equipment at the facility. .

Additional Sizing Assumptions:
SIZE=64;

fsf-materials_status

This data flow is sent from the storage facility to the Manage Maintenance and Construction function and contains data about the types and quantities of materials available at the facility. .

Additional Sizing Assumptions:
SIZE=64;

fsp-shelter_information

This data flow contains information about individual shelters or groups of shelters operated by a relief organization in a region. It contains the location, type, available space, and any other facilities provided at the shelter(s). .

Additional Sizing Assumptions:
SIZE=256;

fsp-shelter_information_to_travelers

This data flow contains information about individual shelters or groups of shelters operated by a relief organization in a region that may be used by the traveler information services function. It contains the location, type, available space, and any other facilities provided at the shelter(s). .

Additional Sizing Assumptions:
SIZE=256;

fstws-env_sensor_data

This data flow provides outputs from a set of environment sensors that are monitored by a surface transportation weather service. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}.

Additional Sizing Assumptions:
None

fstws-env_sensor_data_for_traffic

This data flow provides outputs from a set of environment sensors that are monitored by a surface transportation weather service. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}.

Additional Sizing Assumptions:
None

fstws-roadway_env_sensor_control

This data flow provides control commands for environmental sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environmental_sensor_control}.

Additional Sizing Assumptions:
None

fstws-surface_trans_weather_forecasts

This data flow contains surface transportation related forecasts of weather variables, including temperature (surface and pavement), pressure, wind speed, wind direction, humidity, precipitation, roadway visibility, and pavement conditions as well as forecast data attributes. This data flow also contains surface transportation specific advisories for weather related events. The weather forecasts are classified by meteorological scales, each of which cover a range of time and a range of space. The scales are micro (timescale of minutes and horizontal scale of meters), miso (timescale of minutes to an hour before the event and horizontal scale of meters to a kilometer), meso (timescale of several hours before an event and horizontal scale of one to 100 kilometers), synoptic (a timescale of 12 hour to several day horizon and a horizontal scale of 100 to 5000 kilometers) and climatic (a timescale beyond synoptic and a horizontal scale greater than 5000 kilometers). This data flow consists of the following data items each of which is defined in its own DDE:

micro_scale_surface_trans_weather_forecasts
+ miso_scale_surface_trans_weather_forecasts
+ meso_scale_surface_trans_weather_forecasts
+ synoptic_scale_surface_trans_weather_forecasts
+ climatic_scale_surface_trans_weather_forecasts
+ surface_trans_weather_scale_forecast_data_attributes.

Additional Sizing Assumptions:
None

fstws-surface_trans_weather_observations

This data flow contains surface transportation related weather observations (e.g. temperature, pressure, wind parameters, humidity, precipitation, visibility, pavement temperature, pavement conditions, etc.) and surface transportation weather observation attributes (or meta data). This data flow consists of the following data items each of which is defined in its own DDE:

surface_trans_weather_observations
+ weather_observation_attributes.

Additional Sizing Assumptions:
None

fstws-trans_weather_archive_data

This data flow from the Surface Transportation Weather Service terminator to the Manage Archived Data function contains a catalog and details of surface transportation weather data that may be of interest to the archive data users systems that cannot be obtained directly from ITS functions. This data flow contains the following items each of which is defined in its own DDE:

surface_trans_weather_archive_catalog
+ surface_trans_weather_data_for_archive.

Additional Sizing Assumptions:
None

fta-alert_notification_input

This data flow from the Toll Administrator to the Process Electronic Payment function contains inputs concerning a wide-area alert that has been issued and whether to should be passed on to the toll operators in the field. This information could include specific criteria for toll operators to be on the look out for as they perform their collection activities. .

Additional Sizing Assumptions:
SIZE=256;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

ftc-confirm_fare_payment_at_roadside

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains confirmation that the requested payment of the current transit fare, plus if required the cost of advanced tolls, and/or parking lot charges, and/or transit fares, has been successfully deducted from the total credit previously stored by the payment instrument. This data flow will only apply to those types of payment instrument that can carry stored credit and will not be set by those that only contain a credit identity. .

Additional Sizing Assumptions:
SIZE=confirmation_flag;

ftc-confirm_fare_payment_on_transit_vehicle

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains confirmation that the requested payment of the current transit fare, plus if required the cost of advanced tolls, and/or parking lot charges, and/or transit fares, has been successfully deducted from the total credit previously stored by the payment instrument. This data flow will only apply to those types of payment instrument that can carry stored credit and will not be set by those that only contain a credit identity. .

Additional Sizing Assumptions:
SIZE=confirmation_flag;

ftc-confirm_payment_at_parking_lot

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains confirmation that the requested parking lot charge has been successfully deducted from the total credit previously stored by the payment instrument. This data flow will only apply to those types of payment instrument that can carry stored credit and will not be set by those that only contain a credit identity. .

Additional Sizing Assumptions:
SIZE=confirmation_flag;

ftc-confirm_payment_at_toll_plaza

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains confirmation that the requested payment of the current toll, plus if required the cost of advanced tolls, and/or parking lot charges, and/or transit fares, has been successfully deducted from the total credit previously stored by the payment instrument. This data flow will only apply to those types of payment instrument that can carry stored credit and will not be set by those that only contain a credit identity. .

Additional Sizing Assumptions:
SIZE=confirmation_flag;

ftc-confirm_traveler_parking_payment

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains confirmation that the requested parking lot charge has been successfully deducted from the total credit previously stored by the traveler card / payment instrument carried by the traveler. This data flow will only apply to those types of traveler cards / payment instruments that can carry stored credit and will not be set by those that only contain a credit identity. .

Additional Sizing Assumptions:
SIZE=1;

ftc-driver_vehicle_input_credit_identity

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains the data necessary to allow automatic billing of the user of the payment instrument for the update of the navigable map database used within a vehicle for on-line driver guidance, or the cost of commercial vehicle electronic credential filing and tax payments. For the database update, the vehicle may be a private car, a transit vehicle, or a commercial vehicle. .

Additional Sizing Assumptions:
SIZE = credit_identity;

ftc-parking_tag_data

This data flow is sent from the Traveler Card / Payment Instrument to the Provide Electronic Payment Services function and is used to either identify a particular payment instrument or the amount of credit that it currently has stored, when the instrument is being used on-board a vehicle at a parking lot. In either case the data will be used to enable automatic billing for the current parking lot charge, plus if required, advanced payments for tolls, and/or parking lot charges and/or transit fares. The vehicle may be a private car or van, or a transit vehicle, or a commercial vehicle. In the case of a transit vehicle, the payments will be for the vehicle itself and not for its passengers, i.e. travelers. .

Additional Sizing Assumptions:
SIZE=credit_identity;

ftc-toll_tag_data

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function and is used to either identify a particular payment instrument or the amount of credit that it currently has stored, when the instrument is being used on-board a vehicle passing through a toll plaza. In either case the data will be used to enable automatic billing for the current toll, plus if required, advanced payments for tolls, and/or parking lot charges and/or transit fares. The vehicle may be a private car or van, a transit vehicle, or a commercial vehicle. In the case of a transit vehicle, the payments will be for the vehicle itself and not for its passengers, i.e. travelers. .

Additional Sizing Assumptions:
SIZE=credit_identity;

ftc-transit_roadside_tag_data

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function and is used to either identify a particular payment instrument or the amount of credit that it currently has stored, when the instrument is being used at the roadside, i.e. a transit stop. In either case the data will be used to enable automatic billing for the current transit fare, plus if required, advanced payments for tolls, and/or parking lot charges and/or transit fares. .

Additional Sizing Assumptions:
SIZE=credit_identity;

ftc-transit_vehicle_tag_data

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function and is used to either identify a particular payment instrument or the amount of credit that it currently has stored, when the instrument is being used on-board a transit vehicle. In either case the data will be used to enable automatic billing for the current transit fare, plus if required, advanced payments for tolls, and/or parking lot charges and/or transit fares. The payments will be for the transit vehicle passengers, i.e. travelers, and not for the vehicle itself. .

Additional Sizing Assumptions:
SIZE=credit_identity;

ftc-traveler_parking_input_credit_identity

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains the data necessary to allow identification and automatic billing of the user for payment at a parking facility. .

Additional Sizing Assumptions:
SIZE=20;

ftc-traveler_personal_information

This data flow from the Traveler Card terminator contains information about the traveler using a personal device that may be used by ITS functions to identify travelers (e.g. name, address, etc.) and their traveling preferences (e.g. mode choices historical information, traveler profile data). .

Additional Sizing Assumptions:
SIZE=32;

ftc-traveler_personal_input_credit_identity

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains the data necessary to allow automatic billing of the user of the payment instrument when they are using a personal device, such as a Personal Digital Assistant (PDA) or similar type of unit, that can be used by the traveler to provide travel information, trip planning, or on-line guidance during a multimodal trip. .

Additional Sizing Assumptions:
SIZE = credit_identity;

ftc-traveler_remote_personal_information

This data flow from the Traveler Card terminator contains information about the traveler using a kiosk that may be used by ITS functions to identify travelers (e.g. name, address, etc.) and their traveling preferences (e.g. mode choices historical information, traveler profile data). .

Additional Sizing Assumptions:
SIZE=32;

ftc-traveler_roadside_input_credit_identity

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains the data necessary to allow automatic billing of the user of the payment instrument when they are at a kiosk that provides facilities for traveler information and trip planning. .

Additional Sizing Assumptions:
SIZE = credit_identity;

ftc-traveler_roadside_input_credit_identity_for_transit

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains the data necessary to allow automatic billing of the traveler for advanced tolls, and/or parking lot charges, and/or transit fares, when the traveler is at the roadside, i.e. a transit stop. .

Additional Sizing Assumptions:
SIZE=credit_identity;

ftc-traveler_vehicle_input_credit_identity_for_transit

This data flow is sent from the traveler card / payment instrument to the Provide Electronic Payment Services function. It contains the data necessary to allow automatic billing of the traveler for advanced tolls, and/or parking lot charges, and/or transit fares, when the traveler is on-board a transit vehicle. .

Additional Sizing Assumptions:
SIZE=credit_identity;

ft-destination_at_roadside

This data flow is sent by the traveler to the Manage Transit function and is used to specify the destination of a desired service for which a fare has to be paid at the roadside, i.e. a transit stop. .

Additional Sizing Assumptions:
SIZE=32;

ft-destination_on_vehicle

This data flow is sent by the traveler to the Manage Transit function and is used to specify the destination of a desired service for which a fare has to be paid on-board the transit vehicle. .

Additional Sizing Assumptions:
SIZE=32;

ft-extra_trip_data

This data flow is sent from the traveler to the Provide Driver and Traveler Services function and contains analog data from which sensors can determine extra trip request data to supplement that already input by a traveler at a kiosk. Examples of these inputs are speech, signals from relays driven by switches, buttons, etc., or input from touch screens. .

Additional Sizing Assumptions:
SIZE=64;

ft-guidance_data

This data flow is sent from the traveler to the Provide Driver and Traveler Services function and contains data to be used in preparing the request for a traveler route. .

Additional Sizing Assumptions:
SIZE=64;

ft-guidance_map_update_request

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

Additional Sizing Assumptions:
SIZE=32;

ft-guidance_request

This data flow is sent from the traveler to the Provide Driver and Traveler Services function. It contains the a request to provide on-line traveler guidance and specifies a choice of the type of preferred guidance, i.e. infrastructure based dynamic, or totally autonomous. The traveler will be prompted for further data in order that the guidance can begin. .

Additional Sizing Assumptions:
SIZE=4;

ft-guidance_route_accepted

This data flow is sent from the driver to the Provide Driver and Traveler Services function. It contains acceptance of the route that has been generated in response to a previous request from the traveler for on-line guidance. Guidance will not begin until the acceptance has been received. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=32;

ftop-alert_notification_status

This data flow contains information indicating the status of the alert from the traffic operations personnel including the information systems that are being used to provide the alert notification. .

Additional Sizing Assumptions:
SIZE=64;

ftop-archive_command

This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains data administration commands that the Manage Traffic function will use to control the archival of traffic data by the Manage Archived Data function. These commands may include the data that is to be archived, how the data is processed, how the data is stored, data elements that are deleted, etc. .

Additional Sizing Assumptions:
SIZE=256;

ftop-barrier_safeguard_control_parameters

This data flow is received from the traffic operations personnel and is used to request activation of a barrier system (gates and other automated systems for roadway entry control) or a safeguard system (e.g. blast shields and other automated equipment used to mitigate the impact of incidents on transportation infrastructure). .
Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=64;

ftop-disaster_response_plan_input

This data flow is the response traffic operations personnel has provided as input and updates to a disaster response and recovery plan. It includes the following data item which is defined in its own DDE:

traffic_disaster_response_plan.

Additional Sizing Assumptions:
None

ftop-evacuation_plan_input

This data flow is the response traffic operations personnel has provided as input and updates to an evacuation plan. It includes the following data item which is defined in its own DDE:

traffic_evacuation_plan.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=8;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=16;

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.

Additional Sizing Assumptions:
None

ftop-roadway_incident_input

This data flow is sent to the Manage Traffic function and enables Traffic Operations Personnel to input incident data currently held by the store of defined incident responses held by the Manage Incidents facility. .

Additional Sizing Assumptions:
SIZE=32;

ftop-roadway_info_input

This data flow is received from the traffic operations personnel and is used to input roadway information with the use of Highway Advisory Radio HAR) data and Dynamic Message Sign (DMS). .
Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=8;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=8;

ftop-update_defined_incident_responses

This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains a request for possible defined incident responses to be transferred from their store to that of the actual defined responses that will be used as and when incidents occur. .

Additional Sizing Assumptions:
SIZE=8;

ftop-vehicle_signage_input

This data flow is received from the traffic operations personnel and is used to request and input information using in-vehicle signage. .
Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=128;

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. .

Additional Sizing Assumptions:
SIZE=8;

ft-other_services_roadside_request

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

Additional Sizing Assumptions:

SIZE=8;

ft-other_services_vehicle_request

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

Additional Sizing Assumptions:
SIZE=8;

ft-personal_emergency_request

This data flow is sent from the traveler to the Provide Driver and Traveler Services function. It contains analog data from which sensors can determine that a traveler has an emergency situation that has given rise to an input from the traveler's personal device. This data must be forwarded to the Emergency Services function. .

Additional Sizing Assumptions:
SIZE=2;

ft-personal_extra_trip_data

This data flow is sent from the traveler to the Provide Driver and Traveler Services function and contains analog data from which sensors can determine extra trip request data to supplement that already input by a traveler using a personal device. Examples of these inputs are speech, signals from relays driven by switches, buttons, etc., or input from touch screens. .

Additional Sizing Assumptions:
SIZE=64;

ft-personal_map_display_update_request

This data flow is sent from the traveler to the Provide Driver and Traveler Services function and contains analog input from which may be determined a traveler's request for the update of the digitized map data used as the background to traffic, trip and travel information displays in a personal device. Examples of these inputs are speech, signals from relays driven by switches, buttons, etc., or input from touch screens. .

Additional Sizing Assumptions:
SIZE=2;

ft-personal_trip_planning_requests

This data flow is sent from the traveler to the Provide Driver and Traveler Services function and contains analog inputs from which a traveler's trip request 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. .

Additional Sizing Assumptions:
SIZE=2;

ftra-declaration_information

This data flow is sent from Trade Regulatory Agencies to the Manage Commercial Vehicles function. It contains information regarding pending commercial freight shipments into the United States. .

Additional Sizing Assumptions:
SIZE=4;

ftra-domestic_transportation_information

This data flow is sent from Trade Regulatory Agencies to the Manage Commercial Vehicles function. It contains real-time information regarding trade transportation activity which may include shipper classification, carrier and commodity. .

Additional Sizing Assumptions:
SIZE=4;

ft-remote_emergency_request

This data flow is sent from the traveler to the Manage Emergency Services function and includes a silent alarm request for emergency assistance. .

Additional Sizing Assumptions:
SIZE=8;

ft-request_advisory_information

This data flow is sent from the traveler to the Provide Driver and Traveler Services function and contains data that enables a display on-board a transit vehicle that will be capable of showing transit, yellow pages information and other traffic and travel advisory information (including non-motorized transportation services). .

Additional Sizing Assumptions:
SIZE=64;

ftrf-traffic_data

This data flow is used within the Manage Traffic function. It contains analog data about the presence of traffic flowing on roads and highways from which traffic surveillance data such as vehicle speed, occupancy, flow volume, headway, etc. can be obtained by sensors within ITS. .

Additional Sizing Assumptions:
SIZE=4;

ftrf-traffic_images

This data flow contains visual information (analog data) about the traffic flowing on roads and highways (and at highway rail grade crossings) from which traffic surveillance data can be obtained by image processors within ITS. .

Additional Sizing Assumptions:
SIZE=IMAGE_LARGE;

ftrf-vehicle_pollutant_levels

This data flow is used within the Manage Traffic function and represents the input from the Traffic terminator related to vehicle pollutant levels. It contains analog data from which sensors within ITS can determine the actual levels of various atmospheric pollutants, such as nitrogen oxides, sulfur dioxide, hydrocarbons, carbon monoxide and ozone, that are being produced by particular passing vehicles. .

Additional Sizing Assumptions:
SIZE=4;

ftrf-vehicle_presence

This data flow represents the presence of a vehicle. This presence can be measured by a sensor, which allows the sensor to create an output that can be used to identify if a vehicle has intruded upon the perimeter of a work zone area. .

Additional Sizing Assumptions:
SIZE=1E6;

ft-secure_transit_vehicle_emergency_request

This data flow is sent from the traveler on-board a transit vehicle to the Manage Emergency Services function and includes a silent alarm request for emergency assistance. .

Additional Sizing Assumptions:
SIZE=8;

ftso-alert_notification_status

This data flow contains information indicating the status of the alert from the transit system operator including the information systems that are being used to provide the alert notification. .

Additional Sizing Assumptions:
SIZE=64;

ftso-approved_corrections

This data flow is sent from the transit system operator to the Manage Transit function and contains the transit system operator's approval for changes to transit schedules that will bring one or more transit vehicles back to their schedules. .

Additional Sizing Assumptions:
SIZE=2;

ftso-archive_commands

This data flow is sent from the transit system operator to the Manage Transit function and contains data administration commands that the Manage Transit function will use to control the archival of transit data by the Manage Archived Data function. These commands may include the data that is to be archived, how the data is processed, how the data is stored, data elements that are deleted, etc. .

Additional Sizing Assumptions:
SIZE=256;

ftso-coordination_data

This data flow is sent from the transit system operator to the Manage Transit function and contains an acknowledgment of the previous request for action plus incident coordination and response information. .

Additional Sizing Assumptions:
SIZE=32;

ftso-disable_transit_vehicle

This data flow is initiated by the transit system operator and sent to the Manage Transit function to disable a transit vehicle. Conditions where this command may occur include an incident in progress concerning the transit vehicle, such as a hijacking or armed robbery. This command would not be used for a less serious incident, such as an

argument between passengers, or for a health emergency (e.g., heart attack) where the vehicle might be moving towards a hospital, or paramedics are on the way. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time
+ transit_vehicle_location.

Additional Sizing Assumptions:
None

ftso-emergency_plan_response

This data flow is sent from the Transit System Operator and is used to coordinate disaster response and recovery plans and evacuation plans with transit. .

Additional Sizing Assumptions:
SIZE=128;

ftso-fare_updates

This data flow is sent from the transit system operator to the Provide Electronic Payment Services function. It contains data identifying the transit route number, the fares for some or all or the segments on that route and the time(s)/day(s) that they apply, which are to be updated in the store of transit fares. .

Additional Sizing Assumptions:
SIZE=32;

ftso-initiate_service_updates

This data flow is sent from the transit system operator to the Manage Transit function and indicates that the transit system operator wants the transit services to be re-processed because changes have occurred to the parameters which govern their calculation. .

Additional Sizing Assumptions:
SIZE=4;

ftso-media_parameter_request

This data flow is sent by the transit 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 transit network that is automatically sent to the media. .

Additional Sizing Assumptions:
SIZE=2;

ftso-media_parameter_updates

This data flow is sent by the transit system operator to the Manage Transit function and contains updates to the parameters used to control the style and content of information about incidents affecting the transit network that is automatically sent to the media. .

Additional Sizing Assumptions:
SIZE=32;

ftso-passenger_loading_updates

This data flow is sent from the transit system operator to the Manage Transit function and contains an update to the passenger (traveler, including a user of the transit system) loading data as a result of a miss-match being found in the collected data. .

Additional Sizing Assumptions:
SIZE=8;

ftso-planning_parameters

This data flow is sent from the transit system operator to the Manage Transit function and contains planning parameters used to calculate new transit schedules. .

Additional Sizing Assumptions:
SIZE=32;

ftso-planning_parameters_update_request

This data flow is sent from the transit system operator to the Manage Transit function and contains a request for the current planning transit service planning parameters to be output to the transit system operator. .

Additional Sizing Assumptions:
SIZE=2;

ftso-request_fare_output

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

Additional Sizing Assumptions:
SIZE=2;

ftso-request_response_parameter_output

This data flow is sent from the transit system operator to the Manage Transit function and is used to output the preplanned responses to incidents by and within the transit operations area. .

Additional Sizing Assumptions:
SIZE=4;

ftso-request_transit_vehicle_data

This data flow is sent from the transit system operator to the Manage Transit function and contains a request for output of the current contents of the store of transit vehicle operational data. .

Additional Sizing Assumptions:
SIZE=4;

ftso-response_parameters

This data flow is sent from the transit system operator to the Manage Transit function and is used to provide data about planned responses to incidents by and within the transit operations area. .

Additional Sizing Assumptions:
SIZE=1024000;

ftso-security_action

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

Additional Sizing Assumptions:
SIZE=16;

ftso-technician_information_request

This data flow is sent from the transit system operator to the Manage Transit function and is used to request information about transit maintenance technicians. .

Additional Sizing Assumptions:
SIZE=8;

ftso-technician_information_updates

This data flow is sent from the transit system operator and is used to provide updates to the information held within the Manage Transit function about transit maintenance technicians. .

Additional Sizing Assumptions:
SIZE=32;

ftso-transit_display_update_request

This data flow is sent from the transit system operator 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 transit services data requested by the transit system operator. .

Additional Sizing Assumptions:
SIZE=2;

ftso-transit_services_output_request

This data flow is sent from the transit system operator to the Manage Transit function and is used to request output of the current transit services. This data is produced by the transit route and schedule generation processes in the Manage Transit function. .

Additional Sizing Assumptions:
SIZE=2;

ftso-transit_vehicle_maintenance_information_request

This data flow is sent from the transit system operator to the Manage transit function and contains a request for information about the maintenance status of an individual transit vehicle. .

Additional Sizing Assumptions:
SIZE=2;

ftso-transit_vehicle_maintenance_specs

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

Additional Sizing Assumptions:
SIZE=128;

ftso-transit_vehicle_maintenance_updates

This data flow is sent from transit system operator to the Manage Transit function and is used to provide updates to the maintenance information being held within the function about individual transit vehicles. .

Additional Sizing Assumptions:
SIZE=64;

ftso-transit_vehicle_operator_information_request

This data flow is sent from the transit system operator to the Manage Transit function and contains a request for the output of the consideration data about one or more transit vehicle operators. .

Additional Sizing Assumptions:
SIZE=8;

ftso-transit_vehicle_operator_information_updates

This data flow is sent from the transit system operator to the Manage Transit function and contains an update of the consideration data for a particular transit vehicle operator. This includes matching the operator to a vehicle on a day to day basis. .

Additional Sizing Assumptions:
SIZE=64;

ftso-transit_vehicle_operator_route_preferences

This data flow is sent from the transit system operator to the Manage Transit function and is used to provide information about the preferences that transit vehicle operators have about working over certain transit routes. .

Additional Sizing Assumptions:
SIZE=2;

ftsti-511_batch_regional_info_request

This data flow is sent from the Telecommunications System for Traveler Information terminator to the Provide Driver and Traveler Services function. It contains a region-specific request from a 511 system for a batch upload of traveler information data. The data flow consists of the following data items each of which is defined in its own DDE:

yellow_pages_traveler_request
+ traveler_weather_info_request
+ event_information_request
+ transit_service_regional_request
+ transit_vehicle_deviation_request
+ traffic_data_request
+ multimodal_service_request
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
None

ftsti-511_caller_request

This data flow is sent from the Telecommunications System for Traveler Information terminator to the Provide Driver and Traveler Services function. It contains a traveler information request resulting from a traveler 511 call,

and may be specially formatted for voice-based traveler requests. The 511 system will specify the region for which information is requested. The data flow consists of the following data items each of which is defined in its own DDE:

yellow_pages_traveler_request
+ traveler_weather_info_request
+ event_information_request
+ transit_service_regional_request
+ transit_vehicle_deviation_request
+ traffic_data_request
+ multimodal_service_request
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
None

ft-transit_information_request

This data flow is sent by the traveler to the Manage Transit functions to request information on transit services from a kiosk or other information point. .

Additional Sizing Assumptions:
SIZE=4;

ft-traveler_roadside_image

This data flow is used within the Manage Transit function and contains analog information from which sensors can produce an image of the traveler when a fare transaction violation has been detected at the roadside. The size estimate represents a digitized equivalent of the analog image .

Additional Sizing Assumptions:
SIZE=IMAGE_SMALL;

ft-traveler_vehicle_image

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

Additional Sizing Assumptions:
SIZE=IMAGE_SMALL;

ft-trip_planning_requests

This data flow is sent from the traveler to the Provide Driver and Traveler Services function and contains analog inputs from which a traveler's trip request to a kiosk may be determined. Examples of these inputs are speech, signals from relays driven by switches, buttons, etc., or input from touch screens. .

Additional Sizing Assumptions:
SIZE=8;

ftvo-fare_transaction_mode_set_up

This data flow is sent from the transit vehicle operator to the Manage Transit function. It contains the mode in which the transit fare transaction processing on-board the transit vehicle is to operate. This may be either batch mode (part processing of each fare transaction carried out and the details of a large number of transactions

transferred to the central function for further processing) or interactive mode (complete processing of each transaction carried out without stopping). .

Additional Sizing Assumptions:
SIZE=1;

ftvo-information_updates

This data flow is sent from the transit vehicle operator to the Manage Transit function. It contains information from individual transit vehicle operators about their previous work hours and vacations, etc. It is used to assess an operator's eligibility for future work assignments. .

Additional Sizing Assumptions:
SIZE=128;

ftvo-paratransit_status

This data flow is sent from the transit vehicle operator to the Manage Transit function. It contains status of demand responsive or flexible-route services as and when they are provided to travelers. This data also includes input from the transit vehicle operator concerning paratransit schedules and passenger loading. .

Additional Sizing Assumptions:
SIZE=1024;

ftvo-request_batch_mode_data_transfer

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

Additional Sizing Assumptions:
SIZE=1;

ftvo-request_logon_authentication

This data flow is used by processes within the Manage Transit function. It contains the request to authenticate the transit vehicle operator to the transit vehicle when he attempts to logon to the vehicle. This data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_location
+ transit_vehicle_identity
+ transit_vehicle_operator_identity.

Additional Sizing Assumptions:
None

ftvo-secure_transit_vehicle_emergency_request

This data flow is sent from the transit vehicle operator on-board a transit vehicle to the Manage Emergency Services function to indicate that an emergency has occurred on-board o near a transit vehicle. The data flow includes a silent alarm request for emergency assistance. .

Additional Sizing Assumptions:
SIZE=8;

ftvo-secure_transit_vehicle_surveillance_control

This data flow is sent from the transit vehicle operator on-board a transit vehicle to the Manage Emergency Services function and contains control parameters for closed circuit television (cctv) and audio systems located on-board the vehicle. .

Additional Sizing Assumptions:
SIZE=8;

ftvo-transit_service_status

This data flow is sent from the transit vehicle operator to the Manage Transit function. It provides input from the transit vehicle operator concerning transit schedules, passenger loading, and other service status. .

Additional Sizing Assumptions:
SIZE=2048;

fwe-approaching_train_announcement

This data flow is a real-time notification to the HRI that a train is approaching a specific grade crossing. .

Additional Sizing Assumptions:
SIZE = 2;

fwe-train_data

This data flow contains time critical data about an approaching train and is provided to HRI at the roadside by railroad owned and maintained equipment and/or communications networks. This data, if available, will be provided concurrently with the approaching train announcement and must include data sufficient for the HRI to determine crossing close time, and the anticipated closing duration. A train identification is required to allow the HRI to manage multiple train arrivals at a single crossing within short time intervals. .

Additional Sizing Assumptions:
SIZE=train_id+train_speed+train_length+train_arrival_time;

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. .

Additional Sizing Assumptions:
SIZE = 1;

fws-current_weather_observations

This data flow contains current weather observations, e.g. temperature, pressure, wind parameters , humidity, precipitation, visibility, light conditions, lightning data, radar data, etc. and weather observation attributes (or meta data). This data flow consists of the following data items each of which is defined in its own DDE:

current_weather_observations
+ weather_observation_attributes.

Additional Sizing Assumptions:
None

fws-env_sensor_data

This data flow provides outputs from a set of environment sensors that are monitored by the weather service. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}.

Additional Sizing Assumptions:
None

fws-env_sensor_data_for_traffic

This data flow provides outputs from a set of environment sensors that are monitored by the weather service. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}.

Additional Sizing Assumptions:
None

fws-roadway_env_sensor_control

This data flow provides control commands for environmental sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environmental_sensor_control}.

Additional Sizing Assumptions:
None

fws-weather_archive_data

This data flow from the Weather 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.

Additional Sizing Assumptions:
None

fws-weather_forecasts

This data flow contains forecasts of weather variables, including temperature, pressure, wind speed, wind direction, humidity, precipitation, visibility, and light conditions as well as forecast data attributes. This data flow also contains advisories, watches, or warnings for weather related events. The weather forecasts are classified by meteorological scales, each of which cover a range of time and a range of space. The scales are miso (timescale of minutes to an hour before the event and horizontal scale of meters to a kilometer), meso (timescale of several hours before an event and horizontal scale of one to 100 kilometers), synoptic (a timescale of 12 hour to several day

horizon and a horizontal scale of 100 to 5000 kilometers) and climatic (a timescale beyond synoptic and a horizontal scale greater than 5000 kilometers). This data flow consists of the following data items each of which is defined in its own DDE:

miso_scale_weather_forecasts
+ meso_scale_weather_forecasts
+ synoptic_scale_weather_forecasts
+ climatic_scale_weather_forecasts
+ weather_scale_forecast_data_attributes.

Additional Sizing Assumptions:
None

fypsp-emergency_travel_service_update

This data flow is sent from the information and services provider to the Provide Driver and Traveler Services function. It provides updates to information on yellow pages services as situations change during an emergency, including disasters and evacuation scenarios. The types of service update information being sent include adjustments to availability of services, changes in hours, etc. .

Additional Sizing Assumptions:
SIZE=1024;

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. .

Additional Sizing Assumptions:
SIZE=128;

fypsp-request_provider_registration

This data flow is sent to the Provide Driver and Traveler Services function from the information and service provider to request registration as a provider of 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. .

Additional Sizing Assumptions:
SIZE=4;

fypsp-transaction_confirmation

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

Additional Sizing Assumptions:
SIZE=1;

fypsp-yellow_pages_data

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

Additional Sizing Assumptions:

SIZE=1024000;

geofence_data_for_tracking

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

geographical_area.

Additional Sizing Assumptions:
None

geographical_area

This data flow defines a geographical area or region, and is based on accepted standards for location referencing. .

Additional Sizing Assumptions:
SIZE=24;

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.

Additional Sizing Assumptions:
None

get_fare_violator_payment_image

This data flow is used within the Provide Electronic Payment Services function and contains a data fields which if set non-zero act as request that the image of the traveler currently trying to pay a transit fare be obtained as the payment transaction has been found to be illegal. If the transaction is at the roadside the identity of the transit vehicle will be set to zero, and if on a vehicle the fare collection identity will be set to zero. For vehicle collection, the collection method data will show whether a batch or interactive method is being used for processing the fare collection data. The data flow consists of the following data items each of which is defined in its own DDE :

credit_identity
+ transit_fare
+ transit_roadside_fare_collection_identity
+ transit_route_number
+ transit_route_segment_number
+ transit_route_use_time
+ traveler_category
+ transit_vehicle_fare_collection_method
+ transit_vehicle_identity
+ traveler_identity.

Additional Sizing Assumptions:
None

get_other_route

This data flow is used within the Provide Driver and Traveler Services function to enable the selection of routes that only involve modes other than those using vehicles or transit services. It consists of the following data items each of which is defined in its own DDE:

origin
+ destination
+ departure_time
+ desired_arrival_time
+ modes
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ preferred_weather_conditions
+ constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_special_needs.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

get_transit_route

This data flow is used within the Provide Driver and Traveler Services function. It contains data that enables the selection of a route using only transit services, as part of a traveler's trip request. The data flow consists of the following data items each of which is defined in its own DDE:

origin
+ destination
+ departure_time
+ desired_arrival_time
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ preferred_weather_conditions
+ preferred_transit_options
+ constraint_on_acceptable_travel_time
+ constraint_on_number_of_mode_changes
+ constraint_on_number_of_transfers
+ constraint_on_eta_change
+ constraint_on_special_needs.

Additional Sizing Assumptions:
None

get_vehicle_route

This data flow is used within the Provide Driver and Traveler Services function to enable a route to be selected that only involve the use of vehicles, excluding transit vehicles, i.e. private cars, vans, commercial vehicles, emergency vehicles, etc. It consists of the following data items each of which is defined in its own DDE:

constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_special_needs
+ constraint_on_load_classification
+ constraint_on_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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1024;

government_report_data

This data flow from the Manage Archive function to the Prepare Government Reporting Inputs function. This data flow contains the meta data and data from the archive that can be used to prepare the input to Government reporting systems. The data will allow user defined products to be generated for systems that include Highway Performance Monitoring System (HPMS), Truck Weight Study/VTRIS, National Bridge Inventory, Fatal Accident Reporting System (FARS), Highway Safety Information System (HSIS), Section 15 Transit Data, Motor Carrier Management Information System (MCMIS), Hazardous Materials Incident Reporting System, Grade Crossing Inventory System (GCIS), and Railroad Accident/Incident Reporting System (RAIRS; grade crossing portion). .

Additional Sizing Assumptions:
SIZE=1024;

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. .

Additional Sizing Assumptions:
SIZE=32;

guidance_data

This data flow is used within the Provide Driver and Traveler Services function to transfer data between the Manage Trip Planning and Ridesharing facility and the Provide Guidance and Trip Planning Services facility. It consists of the following data items each of which is defined in its own DDE:

paratransit_route_response
+ trip_request.

Additional Sizing Assumptions:
None

guidance_data_for_archive

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

Additional Sizing Assumptions:
None

guidance_data_for_archive_attributes

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data attribute information to the data archive about the vehicle routes used by vehicles using dynamic guidance and vehicle journey time information. This data flow consists of the following items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:
None

hand_off_coordination

This data flow coordinates a positive hand off of responsibility for all or part of an incident response between agencies. It identifies both agencies, the incident, the portion of the response to be handed off, and other information. Many types of transactions will support the negotiation and transfer of responsibility indicated by this flow. The requirement is that the transaction be positive and unambiguous so that both parties can positively determine that a transfer of responsibility has occurred. .

Additional Sizing Assumptions:
SIZE=4;

handicap_access_information

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

Additional Sizing Assumptions:
SIZE=1024000;

har_data

This data flow contains the HAR data, both program and management, used to define the output of a Highway Advisory Radio (HAR) operating at the roadside in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

har_identity
+ har_program

+ har_management_data
+ har_data_for_evacuation.

Additional Sizing Assumptions:
None

har_data_for_evacuation

This flow contains information regarding the evacuation to be sent to a highway advisory radio for distribution to the traveler. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule.

Additional Sizing Assumptions:
None

har_data_from_m_and_c

This data flow contains the HAR data, both program and management, used to define the output of a Highway Advisory Radio (HAR) operating at the roadside in the geographic and/or jurisdictional area(s) served by the Manage Maintenance and Construction function. It consists of the following data items each of which is defined in its own DDE:

har_identity
+ har_program
+ har_management_data.

Additional Sizing Assumptions:
None

har_equip_status_for_m_and_c

This data flow provides a report to the Manage Maintenance and Construction function of the status of the highway advisory radio equipment. This status includes an indication of the current program being broadcast and an indication of the space available for storing messages/ programs on the device. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment and repair if deemed necessary. It consists of data the following DDE:

har_fault.

Additional Sizing Assumptions:
None

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_identity.

Additional Sizing Assumptions:
None

har_identity

This data flow contains a numerical identifier of an individual Highway Advisory Radio device. .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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). .

Additional Sizing Assumptions:
SIZE=128;

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. .

Additional Sizing Assumptions:
SIZE=128;

har_status

This data flow contains the current status of the Highway Advisory Radio. This status includes an indication of the current program being broadcast, an indication of the space available for storing messages/ programs on the device, and an indication of any device faults. It consists of data the following DDE:

list_size
+ list_size{indicator_identity
    + device_status
    + har_fault}.

Additional Sizing Assumptions:
None

har_status_for_m_and_c

This data flow contains the current status of the highway advisory radio. This status includes an indication of the current program being broadcast and an indication of the space available for storing messages/ programs on the device, and an indication of any device faults. It consists of data the following DDE:

list_size
+ list_size{indicator_identity
+ device_status
+ har_fault}.

Additional Sizing Assumptions:
None

har_wide_area_alert_information

This data flow is used within the Manage Traffic function and contains alert details pertaining to major emergencies, man-made disasters, civil emergencies, or child abductions that are to be broadcasted to drivers and pedestrians with the use of a Highway Advisory Radio program. The program can be defined by a program number or id, or by a sequence of messages (or sound bites). .

Additional Sizing Assumptions:
SIZE=128;

hazard_condition

This data flow provides information from the Detect HRI Hazards process that defines the HRI hazard, potential hazards, and related HRI conditions. .
Additional Sizing Assumptions:
SIZE = 128;

hazmat_load_data

This data flow contains the manifest data plus the chemical characteristics of a hazmat load being carried by a commercial vehicle. This data is used by the emergency services to plan their responses if the vehicle on which the load is traveling is involved in an incident. .

Additional Sizing Assumptions:
SIZE=10;

hazmat_route_restrictions

This data flow contains road segments and areas (surrounded by road segments) that do not allow the transport of security sensitive hazmat cargoes. The data flow consists of the following items each of which is defined in its own DDE:

geographical_area.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:

SIZE=18;

hazmat_vehicle_information

This data flow contains information about hazardous materials on-board a commercial vehicle and details of the vehicle itself. The data flow consists of the following data items each of which is defined in its own DDE:

hazmat_load_data
+ hazmat_vehicle_data.

Additional Sizing Assumptions:
None

hazmat_vehicle_route

This data flow contains routing and cargo information for a vehicle carrying a hazardous material load. The data flow consists of the following data items each of which is defined in its own DDE:

cv_route_number
+ cv_route_data
+ freight_cargo_data
+ freight_equipment_id.

Additional Sizing Assumptions:
None

headway

This data flow is used within the Provide Vehicle Monitoring and Control function. It contains the distance between the vehicle and the vehicle in front in a platoon (headway) as computed from on-board sensors. .

Additional Sizing Assumptions:
SIZE=1;

highway_closures

This data flow contains the current status of links in the highway system. Included are both links that are currently not available for use on the highway system and those links that remain open. The data flow consists of the following data item which is defined in its own DDE:

link_status.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

highway_equipment_data

This data flow is used within the Manage Traffic function and provides information about each highway indicator that is used to provide traffic management commands to drivers. The data flow consists of the following items each of which is defined in its own DDE:

list_size
+ list_size{dms_upstream_identity
    + dms_downstream_identity}
+ dms_allocation.

Additional Sizing Assumptions:
SIZE=list_size+HIGHWAY_SIGN_CONTROLLERS{dms_upstream_identity+dms_downstream_identity}
+dms_allocation;

highway_network

This data flow is used within the Manage Traffic function and contains data about each segment in the highway network and the way in which they fit together, i.e. which segment is joined to which, both upstream and downstream, plus identification of those links that interface to the road (surface street) network. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{route_segment_downstream_identity
    + route_segment_end_point
    + route_segment_identity
    + route_segment_start_point
    + route_segment_upstream_identity}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_HIGHWAY_SEGS{route_segment_end_point+route_segment_identity
+route_segment_start_point+route_segment_downstream_identity
+route_segment_upstream_identity};

highway_sign_plan_data

This data flow is used within the Manage Traffic function and contains data about the highway indicator sequence(s) needed to implement a specific traffic management control strategy in part of the highway in the geographic and jurisdictional area(s) served by the Manage Traffic function. A strategy can be anything from setting a speed restriction, to closing a single lane, to closing the whole highway. It may be either designed to suit specific locations on the highway network (lane closures), or for general application (speed restrictions). The data flow consists of the following data items each of which is defined in its own DDE:

highway_sign_plan_purpose
+ highway_sign_sequence_data
+ highway_sign_plan_priority.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=3;

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. .

Additional Sizing Assumptions:
SIZE=1;

highway_sign_plan_purpose

This data flow is used within the Manage Traffic function which defines the purpose of highway sign plans. These codes include, but not be limited to data such as close highway I695 at exit 157 northbound, set 40 mph speed limit on highway I475 southbound (may apply anywhere), close the right two lanes on highway I895 from exit 133 eastbound. .

Additional Sizing Assumptions:
SIZE=15;

highway_sign_sequence_data

This data flow is used within the Manage Traffic function and contains data about the sequence in which a set of highway indicators must be set in order to implement a specific action, e.g. close one lane, set a speed restriction, etc. The sequences are designed to enable the action to implemented safely, e.g. a speed restriction of 40 mph could be preceded by warnings that it starts 'x' feet farther along the highway, where 'x' is the distance from the indicator to the start of the speed restriction. Sequences are not location specific and are standard for a particular action. The data flow consists of the following data items each of which is defined in its own DDE:

highway_sign_sequence_purpose
+ indicator_list.

Additional Sizing Assumptions:
None

highway_sign_sequence_purpose

This data flow is used within the Manage Traffic function and contains codes which defines the purpose of a highway sign sequence, such as close one lane, close right-hand (nearside) lane, close center lane, close left-hand (offside) lane, close two lanes, close three lanes, close all lanes, i.e. close the highway in one direction, set 40 mph speed limit (from higher limit), set 50 mph speed limit (from higher limit), set 40 mph speed limit (from no limit) .

Additional Sizing Assumptions:
SIZE=3;

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}.

Additional Sizing Assumptions:
SIZE=list_size+HIGHWAY_SIGN_SEQUENCES{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}.

Additional Sizing Assumptions:
SIZE=list_size+HIGHWAY_SIGN_PLANS{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.

Additional Sizing Assumptions:
None

historical_other_routes_use

This data flow is used within the Provide Driver and Traveler Services function and contains historical data about the non-vehicle portion(s) of routes that have been requested by travelers. These route portions will involve the use of modes such as cycling, walking, etc. The data will be stored in ascending route segment number order (i.e. from 1 to the maximum number of route segments), and consists of the following data items each of which is defined in its own DDE:

route_segment_total_number
+ route_segment_total_number{route_segment_identity
    + time_period{route_segment_guided_travelers}
    + route_segment_journey_time}.

Additional Sizing Assumptions:
SIZE=route_segment_total_number+OTHER_SEGS{TIME_PERIOD{route_segment_guided_travelers}
+route_segment_journey_time+route_segment_identity};

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}.

Additional Sizing Assumptions:
SIZE=list_size+PARKING_LOTS{parking_lot_current_occupancy+parking_lot_identity
+parking_lot_state};

historical_pollution_state_area_collection

This data flow is used within the Manage Traffic function and contains the historical states of the various types of pollution within the atmosphere in the geographic area served by the function. It also contains a summary indication of the area air quality. It consists of the following data items each of which is defined in its own DDE:

current_ozone_pollution
+ current_nitrogen_oxides_pollution
+ current_sulfur_dioxide_pollution
+ current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution
+ current_particulate_pollution
+ current_pollution_location
+ area_air_quality_index.

Additional Sizing Assumptions:
None

historical_pollution_state_roadside_collection

This data flow contains the digitized values of pollution levels obtained from roadside sensors in the geographic area served by the function. It consists of the following data items each of which is defined in its own DDE:

current_ozone_pollution
+ current_nitrogen_oxides_pollution
+ current_sulfur_dioxide_pollution
+ current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution
+ current_particulate_pollution
+ current_roadside_pollution_location.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_HIS_INCIDENTS{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.

Additional Sizing Assumptions:
None

historical_traffic_management_storage_data

This data flow is used within the Manage Traffic function. It contains the indicator control and response states plus the selected traffic control strategy(ies) for the road (surface street) and highway network served by the function. The data is a subset of that in the current and historical data stores. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_control_storage_data
+ indicator_input_storage_data
+ selected_strategy.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+VEH_PROBE_SITES{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 Center (TMC) and consists of the following data items each of which is defined in its own DDE:

historical_pollution_state_area_collection
+ list_size
+ list_size{historical_pollution_state_roadside_collection}.

Additional Sizing Assumptions:
SIZE=historical_pollution_state_area_collection+list_size
+POLLUTION_POINTS{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}.

Additional Sizing Assumptions:
SIZE=list_size+HOV_LANES{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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
SIZE=list_size+HOV_LANES{hov_lane_identity};

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. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
SIZE=hov_lane_list+HOV_LANES{hov_lane_data};

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.

Additional Sizing Assumptions:
SIZE=link_list+LINKS{private_vehicle_occupants+hov_priority};

hov_sensor_equip_status_for_m_and_c

This data flow is used within the Manage Maintenance and Construction function to report the status of an HOV sensor. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_status}.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=128;

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. .

Additional Sizing Assumptions:
SIZE=128;

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. .

Additional Sizing Assumptions:
SIZE=16;

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. .

Additional Sizing Assumptions:
SIZE = 128;

hri_closure_data_response

This data flow represents an historical log of HRI closure data. .

Additional Sizing Assumptions:
SIZE=1024;

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. .

Additional Sizing Assumptions:
SIZE = 128;

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.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+GRADE_CROSSINGS{crossing_identity+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 Manage Device Control process in the Manage Traffic function.

traffic_device_control
+ hsr_device_control
+ ssr_device_control
+ barrier_device_control.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=128;

hri_device_status

This data flow represents the current status of the devices used at an HRI and includes pertinent information relative to wayside equipment status. It is used to determine the overall health and status of the HRI by the Monitor HRI Status process. .

Additional Sizing Assumptions:
SIZE = 128;

hri_guidance_for_beacon_message

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

Additional Sizing Assumptions:
SIZE = 3;

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. .

Additional Sizing Assumptions:
SIZE=3;

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. .
Additional Sizing Assumptions:
SIZE = 128;

hri_incident_data

This is a data flow used to inform the Manage Incidents process about an incident at an HRI. .

Additional Sizing Assumptions:
SIZE = 256;

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. .

Additional Sizing Assumptions:

SIZE=5;

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. .
Additional Sizing Assumptions:
SIZE = 128;

hri_priority_message

This data flow provides urgent information from HRI to rail operations via the Exchange Data with Rail Operations process and reflects HRI generated alerts and advisories. The information provided would include notification of a HAZMAT spill, equipment failure, or an intersection blockage. .

Additional Sizing Assumptions:
SIZE = 128;

hri_rail_alert

This data flow represents an alert that the Manage HRI Rail Traffic process has alerted rail traffic to an immediate hazard. .
Additional Sizing Assumptions:
SIZE = 128;

hri_reporting_data

This data flow contains data required to formulate a wayside response to an approaching train at an active grade crossing. At a minimum it indicates the health of the HRI equipment as a binary function. .

Additional Sizing Assumptions:
SIZE = 256;

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.

Additional Sizing Assumptions:
None

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 traveler 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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE = dms_advisory_text;

hri_state

This data flow represents the complete state of an HRI as determined by monitoring the status of the track, traffic and equipment. .
Additional Sizing Assumptions:
SIZE = 128;

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. .

Additional Sizing Assumptions:
SIZE = 64{GRADE_CROSSINGS};

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.

Additional Sizing Assumptions:
None

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. .
Additional Sizing Assumptions:
SIZE = 128;

hri_strategy_override

This data flow is used by Traffic Management to preempt the local control plans of an HRI. .

Additional Sizing Assumptions:
SIZE=1024;

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.

Additional Sizing Assumptions:
None

hri_traffic_data

This data flow contains data to be used by traffic management to coordinate its overall operations with the HRI activity. .
Additional Sizing Assumptions:
SIZE = 128;

hri_traffic_surveillance

This data flow represents the various traffic sensor inputs to HRI from the Traffic Surveillance processes .
Additional Sizing Assumptions:
SIZE = 256;

hsr_control_request

This data flow requests specialized control device activation at a grade crossing identified as a suitable for High Speed Rail service. .

Additional Sizing Assumptions:
SIZE = 128;

hsr_device_control

This data flow controls the state of specialized control devices at a grade crossing identified as a suitable for High Speed Rail service. .

Additional Sizing Assumptions:
SIZE = 128;

hsr_device_control_state

This data flow contains the state of specialized control devices at a grade crossing identified as a suitable for High Speed Rail service. .

Additional Sizing Assumptions:
SIZE = 128;

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.

Additional Sizing Assumptions:
None

image_for_analysis

This data flow is used within the Manage Emergency Services function and contains surveillance video data from secure areas inside or outside the local area of operation. This flow includes high resolution video images and data produced by processing those images. The image data is obtained from areas frequented by travelers, and from areas typically away from travelers. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ transit_vehicle_location
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image
+ secure_area_images
+ secure_video_image_data.

Additional Sizing Assumptions:
None

image_id

This data flow is used within the Emergency Services function to analyze and disseminate information about surveillance video images. The images are checked against a database of known images (criminal elements). The data flow contains the identity of an image that is being analyzed against this data. .

Additional Sizing Assumptions:
SIZE=16;

image_match_confirmation

This data flow is used within the Emergency Services function to indicate whether image matching analysis of a video image obtained from a surveillance camera was successful or not. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

image_match_potential_confirmation

This data flow is used within the Emergency Services function to indicate whether analysis of a video image obtained from a surveillance camera was successful or not. Emergency Services sends an indication of a potential image match to the Alert and Advisory System, which then confirms or denies the match. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

image_match_process_parameters

This data flow contains parameters to define how the surveillance video image data collected from secure areas (frequented by travelers, such as transit stops, rest areas, park and ride lots, etc., or away from travelers, such as tunnels and bridges, etc.) for use in image matching analysis is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing in the field and may include the timeframe in which to search, the image characteristics that are to be analyzed, the location, etc. .

Additional Sizing Assumptions:
SIZE=32;

image_matching_analysis_results

This data flow is used within the Manage Emergency Services function and contains the results of image matching analysis for use by emergency system personnel. This flow indicates whether an image has matched an image in the database of known images. The image data is obtained from areas frequented by travelers, and from areas typically away from travelers. The data flow consists of the following data items each of which is defined in its own DDE:

timestamp
+ station_id
+ transit_vehicle_location
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ image_match_confirmation
+ image_id.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=64;

import_archive_status

This data flow from the Get Archive Data function contains the status of the import process including any alarms of bad or missing data. This status information will provide feedback to the administrator based on the inputs provided for formatting, cleansing, and checking. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

imported_map_data_for_archive

This data flow is sent by the Map Update Provider and contains information that may be of interest to archive data users systems such as updated maps of the transportation network. .

Additional Sizing Assumptions:
SIZE=1024000;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=256;

incident_and_event_data

This data flow is used within the Manage Emergency Services function. It contains information about an emergency that has been identified from the inputs received within the function. The data flow consists of some or all or the following data items which are defined in their own DDEs:

identified_emergency_details
+ vehicle_status_details
+ emergency_input_for_disaster.

Additional Sizing Assumptions:
None

incident_confidence_level

This data flow defines the level of confidence that can be associated with a particular set of incident data. This level will depend on a number of factors such as the source of the incident data (police, media, driver, traveler, etc.), the type of incident (this may affect how easy it is to detect), and the time at which the incident was detected.
.

Additional Sizing Assumptions:
SIZE=1;

incident_cvo_data

This data flow is used within the Manage Emergency Services function and contains incident data concerning commercial vehicle operations. It consists of the following items each of which is defined in its own DDE:

list_size + list_size{cvo_alarm
+ cvo_hazmat_spill_data
+ cf_hazmat_route_information
+ freight_alarm}.

Additional Sizing Assumptions:
None

incident_data

This data flow is used within the Manage Traffic function to send incident data from the Manage Incidents facility to the Provide Traffic Surveillance facility for use by the predictive model process and for transfer to a similar function at another traffic management center (TMC). It consists of the following data items each of which is defined in its own DDE:

current_incident_data
+ planned_event_data
+ planned_events
+ planned_events_local_data
+ request_other_current_incidents_data
+ request_other_planned_events_data
+ incident_video_image
+ disaster_traffic_data_for_other_traffic_management
+ evacuation_traffic_data_for_other_traffic_management.

Additional Sizing Assumptions:
None

incident_data_flow

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

emergency_request_personal_traveler_acknowledge
+ emergency_request_driver_acknowledge
+ incident_information
+ wide_area_alert_notification_for_travelers
+ evacuation_data_for_isp
+ traveler_information_restrictions_for_travelers
+ deactivate_traveler_information_restrictions_for_travelers
+ transportation_system_status_to_isp.

Additional Sizing Assumptions:
None

incident_data_for_dre

This data flow is sent from the Manage Incident function to the Manage Emergency Services function. It contains the following data item which is defined in its own DDE:

disaster_response_plan_coordination_from_traffic
+ evacuation_plan_coordination_from_traffic
+ traffic_evacuation_status.

Additional Sizing Assumptions:
None

incident_data_for_em

This data flow is sent from the Manage Incident function to the Manage Emergency Services function. It contains the following data item which is defined in its own DDE:

incident_alert
+ incident_response_clear
+ resource_deployment_status
+ alert_notification_status_from_traffic.

Additional Sizing Assumptions:
None

incident_data_for_work_zone

This DFD flow represents the data flows from Traffic Data Analysis for Incidents to Manage Work Zones and includes video images. It consists of the following items each of which is defined in its own DDE:

work_zone_intrusion_video_image
+ work_zone_images.

Additional Sizing Assumptions:
None

incident_data_input

This data flow is used within the Manage Traffic function to send processed traffic sensor data and data received from other traffic management centers (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
+ environmental_data_for_incidents
+ disaster_traffic_data_from_other_traffic_management
+ evacuation_traffic_data_from_other_traffic_management.

Additional Sizing Assumptions:
None

incident_data_request

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

driver_status_update
+ emergency_request_personal_traveler_details
+ emergency_request_driver_details
+ emergency_request_driver_acknowledge
+ vehicle_location_for_emergency_services
+ vehicle_status_update
+ alert_notification_status_from_travelers.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

incident_info_for_emerg

This data flow is sent from the Manage Maintenance and Construction function to the Manage Emergency Services function and contains information about incidents detected by the M&C function. It consists of the following items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:
None

incident_info_for_traffic

This data flow is sent from the Manage Maintenance and Construction function to the Manage Traffic function and contains information about incidents detected by the M&C function. It consists of the following items each of which is defined in its own DDE:

incident_number

+ incident_location
+ incident_start_time
+ incident_duration
+ incident_type
+ incident_severity
+ incident_traffic_impact.

Additional Sizing Assumptions:
None

incident_info_from_emerg

This data flow contains information about incidents detected by the Manage Emergency function. It consists of the following items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:
None

incident_info_from_traffic

This data flow is used to send details of an incident from the Manage Traffic function to the Manage Maintenance and Construction function. It contains the following data items each of which is defined in its own DDE:

incident_location
+ incident_start_time
+ incident_duration
+ incident_severity
+ incident_type
+ incident_traffic_impact.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=64;

incident_info_type

This data defines whether amended incident or defined responses data is being provided or is to be sent to the traffic operations personnel. .

Additional Sizing Assumptions:
SIZE=1;

incident_information

This data flow is sent from the Manage Emergency Services function to the Provide Driver and Traveler Services function and contains information that has been requested about incidents. It consists of the following items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=2;

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
+ roadway_information_incident_updates.

Additional Sizing Assumptions:
None

incident_report_source

This data flow contains information about the source of an emergency that has been identified from the inputs received within the function. Examples of the information described by these codes are: emergency telephone service, the E911 service operator, an in-vehicle emergency declared by a driver, and for a transit emergency, etc. .

Additional Sizing Assumptions:
SIZE=3;

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.

Additional Sizing Assumptions:
None

incident_request_criteria

This data flow is used within the Manage Emergency Services functions. It contains the time from which details of current incidents known to the function are to be reported to other functions, i.e. incidents in a particular geographic area and/or the request for the status, time, location, or other criteria pertinent information about the incident. The data flow consists of the following data item which is defined in its own DDE:

time.

Additional Sizing Assumptions:
None

incident_resource_coordination

This data flow coordinates the request and deployment of resources from multiple agencies to the incident scene. .

Additional Sizing Assumptions:
SIZE=1024;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

incident_response_log_output

This data flow is used within the Manage Traffic function. It contains the data currently held in the store of incident response logs and consists of the following data items, each of which is defined in its own DDE:

incident_location
+ incident_type
+ incident_severity
+ incident_description
+ incident_traffic_impact
+ planned_incident_response.

Additional Sizing Assumptions:
None

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 such as the organization name, address, phone number, mobile phone number or fax number. .

Additional Sizing Assumptions:
SIZE=1024;

incident_response_status_from_emerg

This data flow provides the current status of an incident response indicating site management strategies in effect, incident clearance status, the incident command structure that is in place, and points of contact. .

Additional Sizing Assumptions:
SIZE=1024;

incident_sensor_data

This data flow is used within the Manage Emergency Services function and contains sensor data collected from secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, on-board transit vehicles, etc.) as well as those secure areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.) for evaluation as a possible incident. Sensor data includes data from threat sensors, object detection sensors, intrusion and motion detection sensors, and infrastructure integrity sensors, as well as data produced by processing the sensor data. It consists of the following items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ sensor_identity
+ infrastructure_integrity_sensor_data_collected
+ infrastructure_integrity_sensor_processed_data
+ threat_sensor_data_collected

+ threat_sensor_processed_data
+ object_sensor_data_collected
+ object_sensor_processed_data
+ intrusion_motion_sensor_data_collected
+ intrusion_motion_sensor_processed_data}.

Additional Sizing Assumptions:
None

incident_severity

This data flow defines the severity of an incident. .

Additional Sizing Assumptions:
SIZE=3;

incident_start_time

This data flow is used within the Manage Traffic function and shows the time at which an incident will start. The time indicated may include the time an incident is verified, confirmed, or detected. The point at which it starts to have an effect on traffic conditions will be later than this time which is used as the trigger for any corrective or mitigating action, e.g. change in traffic control strategy. Thus in the case of incidents that are some form of special event, the start time may not be the actual event start time. An example would be a baseball game, which could create an incident as spectators arrive for the start of the game. The time at which this happens will be different (before) the actual start of the game but after the time at which the gates open. The data flow consists of the following data item which is defined in its own DDE:

time.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

incident_status_update

This data flow provides detailed incident information gathered by emergency personnel at the incident site. Information could include the number and extent of injuries, identification of vehicles and people involved, specification of hazardous material, and any other information required to completely and accurately determine the scope and severity of the incident and the required response. Current response status is also provided which includes identification of the resources on site, site management strategies in effect, and current clearance status. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ emergency_vehicle_identity
+ emergency_vehicle_status_code
+ incident_number
+ time
+ incident_status

+ incident_location
+ incident_start_time
+ incident_duration
+ incident_type
+ incident_severity.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

incident_surveillance_data

This data flow is used within the Manage Emergency Services function and contains surveillance data collected from secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, on-board transit vehicles, etc.) as well as those secure areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.) for evaluation as a possible incident. Surveillance data includes video images and audio, as well as data produced by processing the surveillance data. It consists of the following items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image
+ secure_audio
+ secure_area_images
+ secure_video_image_data
+ secure_audio_data}.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=80;

incident_type

This data flow identifies an incident type using a uniquely defined character code matched to a specific type of incident. .

Additional Sizing Assumptions:
SIZE=3;

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. .

Additional Sizing Assumptions:
SIZE=3;

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=MPEG{ftrf-traffic_images};

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. .

Additional Sizing Assumptions:
SIZE=8;

incidents_data_request_for_routing

This data flow represents a request for data on current incidents for use by the Traffic Routing function. .

Additional Sizing Assumptions:
SIZE=48;

incidents_for_routing

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

current_incident_details.

Additional Sizing Assumptions:
None

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 traveler 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
+ har_wide_area_alert_information
+ dms_data
+ dms_control_data
+ dms_wide_area_alert_information.

Additional Sizing Assumptions:
None

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 traveler 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.

Additional Sizing Assumptions:
None

indicator_control_data_for_hri

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators at the roadside on roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

indicator_sign_control_data_for_hri.

Additional Sizing Assumptions:
None

indicator_control_data_for_roads

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators at the roadside on roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

indicator_crossing_control_data_for_roads
+ indicator_junction_control_data
+ indicator_pedestrian_control_data.

Additional Sizing Assumptions:
None

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 traveler 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_roads.

Additional Sizing Assumptions:
None

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 traveler 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.

Additional Sizing Assumptions:
None

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 traveler 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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

indicator_crossing_control_data_for_highways

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

list_size
+ list_size{indicator_identity
    + indicator_crossing_controls}.

Additional Sizing Assumptions:
SIZE=list_size+HIGHWAY_CROSSING_CONTROLLERS{indicator_identity
+indicator_crossing_controls};

indicator_crossing_control_data_for_roads

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators at multimodal crossings on roads (surface streets) served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + indicator_crossing_controls}.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_CROSSING_CONTROLLERS{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. .

Additional Sizing Assumptions:
SIZE=20;

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.

Additional Sizing Assumptions:
None

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_fault_number.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

indicator_data

This data flow is used within the Manage Traffic function and contains the data from which a roadside indicator can create the message for output to drivers and travelers. .

Additional Sizing Assumptions:
SIZE=6;

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_roads.

Additional Sizing Assumptions:

None

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}.

Additional Sizing Assumptions:
SIZE=list_size+HIGHWAY_INDICATORS{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}.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_INDICATORS{indicator_type+indicator_fault};

indicator_equip_status_from_highways_for_m_and_c

This data flow is used within the Manage Maintenance and Construction function to detect when an indicator used on the highway has developed a fault, and therefore operating incorrectly. The fault will have been found by a process that may not be local to the indicator itself, and may be located anywhere in the geographic area covered by the indicator. 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}.

Additional Sizing Assumptions:
SIZE=list_size+HIGHWAY_INDICATORS{indicator_type+indicator_fault};

indicator_equip_status_from_roads_for_m_and_c

This data flow is used within the Manage Maintenance and Construction function to detect when an indicator at the roadway has developed a fault, and therefore operating incorrectly. The fault will have been found by a process that may not be local to the indicator itself, and may be located anywhere in the geographic area covered by the indicator. 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}.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_INDICATORS{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. .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

indicator_highway_control_static_data

This data flow is used within the Manage Traffic function and contains data about the control data which may be used by indicators, either locally or as a series of commands from a central source, to provide traffic management on the highway network controlled by the Manage Traffic function. The data flow consists of the following data items each of which is defined in its own DDE:

highway_sign_setting_data
+ highway_sign_setting_plans.

Additional Sizing Assumptions:
None

indicator_highway_requested_state

This data flow is used within the Manage Traffic function and contains the actual state of operation of an indicator used to pass instructions to drivers and travelers on the highway network served by the function. The form of indication shown to drivers will depend on the type of indicator. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_control_data_for_highways}.

Additional Sizing Assumptions:
SIZE=list_size+HIGHWAY_INDICATORS{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.

Additional Sizing Assumptions:
None

indicator_input_data

This data flow is used within the Manage Traffic function and contains the actual state of operation of the roadside indicators used to pass instructions to drivers and travelers on roads and highways. It consists of the following data items each of which is defined in its own DDE:

indicator_input_data_from_highways
+ indicator_input_data_from_roads
+ har_status
+ dms_status.

Additional Sizing Assumptions:
None

indicator_input_data_from_highways

This data flow is used within the Manage Traffic function and contains the actual state of operation of the roadside indicators used to pass instructions to drivers and travelers on freeways within the geographic and/or jurisdictional area(s) served by 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}.

Additional Sizing Assumptions:
SIZE=list_size+HIGHWAY_INDICATORS{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 travelers on roads (surface streets) within the geographic and/or jurisdictional area(s) served by the function. It is used for centralized monitoring the operation of the indicators and consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + indicator_response_state}.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_INDICATORS{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}.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_INDICATORS{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}.

Additional Sizing Assumptions:
SIZE=list_size+HIGHWAY_INDICATORS{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.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+HIGHWAY_INDICATORS{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}.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_INDICATORS{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 traveler 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}.

Additional Sizing Assumptions:
SIZE=list_size+INT_CONTROLLERS{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. .

Additional Sizing Assumptions:
SIZE=40;

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.

Additional Sizing Assumptions:
SIZE=list_size+INDICATORS{indicator_identity};

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 transit or emergency vehicle. .

Additional Sizing Assumptions:
SIZE=1;

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 Manage Maintenance and Construction function. It consists of the following data items each of which is defined in its own DDE:

indicator_type
+ indicator_fault
+ indicator_fault_number.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:

SIZE=4;

indicator_override_for_highways

This data flow is used within the Manage Traffic function. It contains an instruction to suspend the current operation of an indicator on the freeway network served by the function and give priority to the stream of traffic in which a transit or emergency vehicle is traveling. This data flow is generated by a process that has received a priority request from either the Manage Transit or Manage Emergency Services functions. .

Additional Sizing Assumptions:
SIZE=1;

indicator_override_for_roads

This data flow is used within the Manage Traffic function. It contains an instruction to suspend the current operation of an indicator on the road (surface streets) network served by the function and give priority to the stream of traffic in which a transit or emergency vehicle is traveling. This data flow is generated by a process that has received a priority request from either the Manage Transit or Manage Emergency Services functions. .

Additional Sizing Assumptions:
SIZE=1;

indicator_pedestrian_control_data

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

list_size
+ list_size{indicator_identity
    + indicator_pedestrian_controls}.

Additional Sizing Assumptions:
SIZE=list_size+PED_CONTROLLERS{indicator_identity+indicator_pedestrian_controls};

indicator_pedestrian_controls

This data flow contains the actual control data to be passed to an indicator at a pedestrian crossing. This will be either the actual indication to be seen by the driver and the traveler, e.g. red for stop vehicle or cross now indication, or a set of these instructions with duration times put together to form a fixed time signal plan, or an instruction to run using the controller's local intelligence. .

Additional Sizing Assumptions:
SIZE=20;

indicator_ramp_control_data

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

list_size
+ list_size{indicator_identity
    + ramp_controls}.

Additional Sizing Assumptions:
SIZE=list_size+RAMP_CONTROLLERS{indicator_identity+ramp_controls};

indicator_requested_state

This data flow is used within the Manage Traffic function and contains the actual state of operation of a roadside indicator used to pass instructions to drivers and travelers. The state will show some type of indication to drivers depending on the type of indicator. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_road_requested_state
+ indicator_highway_requested_state.

Additional Sizing Assumptions:
None

indicator_response_data_for_highways

This data flow is used within the Manage Traffic function. It contains the actual state of operation of the roadside indicators used to pass instructions to drivers and travelers on the highways in the geographic and/or jurisdictional area(s) served by the function. The data is used for local monitoring the operation of the indicators. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_type
    + indicator_response_state}.

Additional Sizing Assumptions:
SIZE=list_size+HIGHWAY_INDICATORS{indicator_type+indicator_response_state};

indicator_response_data_for_roads

This data flow is used within the Manage Traffic function. It contains the actual state of operation of the roadside indicators used to pass instructions to drivers and travelers on the roads (surface streets) and at railroad grade crossings in the geographic and/or jurisdictional area(s) served by the function. The data is used for local monitoring of the operation of indicators. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_type
    + indicator_response_state}.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_INDICATORS{indicator_type+indicator_response_state};

indicator_response_state

This data element contains the current state of an indicator that is being used to control traffic on the roads (surface streets) and highways in the geographic area served by the TMC. It is used to check that the indicator is performing as requested and may form the basis for a fault report if it is not. The data flow identifies the indicator state. Examples of typical states are correct operation, not responding, stuck on phase, and phase will not respond. .

Additional Sizing Assumptions:
SIZE=3;

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. .

Additional Sizing Assumptions:
SIZE=3;

indicator_road_adaptive_plans

This data flow is used within the Manage Traffic function and contains data about the adaptive control data which may be used by indicators, either locally or as a series of commands from a central source, to provide traffic management on the road network controlled by the Manage Traffic function. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_road_adaptive_plan_number
+ crossing_adaptive_data
+ intersection_adaptive_data
+ pedestrian_adaptive_data}.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_ADAPTIVE_PLANS{indicator_road_fixed_plan_number
+crossing_fixed_time_data+intersection_fixed_time_data+pedestrian_fixed_time_data};

indicator_road_control_static_data

This data flow is used within the Manage Traffic function and contains data about the control data which may be used by indicators, either locally or as a series of commands from a central source, to provide traffic management on the road network controlled by the Manage Traffic function. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_road_adaptive_plans
+ indicator_road_fixed_plans.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=3;

indicator_road_fixed_plans

This data flow is used within the Manage Traffic function and contains data about the fixed time control data which may be used by indicators, either locally or as a series of commands from a central source, to provide traffic management on the road network controlled by the Manage Traffic function. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_road_fixed_plan_number
+ crossing_fixed_time_data
+ intersection_fixed_time_data
+ pedestrian_fixed_time_data}.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_FIXED_PLANS{indicator_road_fixed_plan_number
+crossing_fixed_time_data+intersection_fixed_time_data+pedestrian_fixed_time_data};

indicator_road_requested_state

This data flow is used within the Manage Traffic function and contains the actual state of operation of an indicator used to pass instructions to drivers and travelers on the road network served by the function. The form of indication shown to drivers will depend on the type of indicator. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_control_data_for_roads}.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_INDICATORS{indicator_control_data_for_roads};

indicator_sign_control_data

This data flow contains the actual data for use by indicators that are dynamic message (DMS) and other types of signs on roads and freeways served by the function. The data flow consists of the following items each of which is defined in its own DDE's:

[indicator_identity
| lane_dms_controls
| parking_lot_dms_controls
| pollution_output_message
| dms_advisory_text].

Additional Sizing Assumptions:
None

indicator_sign_control_data_for_hri

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators, dynamic message (DMS), 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
+ hri_sign_control_data}.

Additional Sizing Assumptions:
SIZE=list_size+GRADE_CROSSINGS{crossing_id+hri_sign_control_data};

indicator_type

This data flow is used within the Manage Traffic function and contains the type of indicator to which the accompanying output or input data applies. The type may be either intersection signal controller, pedestrian signal controller, dynamic message sign (DMS) or multimodal crossing. .

Additional Sizing Assumptions:
SIZE=1;

individual_vehicle_speed

This data flow contains the time stamped speed of an individual vehicle as measured by a speed sensor. It consists of the following data items each of which are defined in its own DDE:

list_size + list_size{sensor_identity
+ timestamp
+ speed_sensor_data}.

Additional Sizing Assumptions:
None

individual_vehicle_speed_for_display

This data flow contains an indication of an individual vehicle's speed which can be displayed on a dynamic message sign (DMS). .

Additional Sizing Assumptions:
SIZE=8;

information_alert_data

This data flow contains information pertaining to a major emergency or man made disaster to be displayed using roadside devices (DMS or HAR) or within a vehicle. It consists of the following data items each of which is defined in its own DDE:

roadway_info_alert_data
+ vehicle_signage_alert_data.

Additional Sizing Assumptions:
None

information_datapage

This data flow is used within some ITS functions and represents the quantity of data that would be contained on a page. The data will be provided as a string of characters and will be formatted as required by the receiving process. .

Additional Sizing Assumptions:
SIZE=4000;

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. .

Additional Sizing Assumptions:
SIZE=102400;

information_request_id

This data flow contains the identity of a traveler request from a 511 traveler information system. This identity serves as a tracking number to link the response to the requesting party, whether it be an individual traveler or a more general periodic dump to the 511 system for local storage. .

Additional Sizing Assumptions:

SIZE=24;

infrastructure_condition

This data flow contains the results of analysis performed on roadway and transit infrastructure based on infrastructure monitoring sensors, and includes the current status and condition of the infrastructure. .

Additional Sizing Assumptions:
SIZE=32;

infrastructure_data_for_archive

This data flow is used within the Manage Maintenance and Construction function and consists of raw and processed data concerning the condition of the infrastructure as reported from sensor equipment on the roadside and on-board maintenance and construction vehicles. This infrastructure includes bridges, culverts, signs, and other roadway infrastructure. The function receiving this flow will process this information and present it to the Manage Archived Data function. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_data_for_m_and_c
+ mcv_infrastructure_sensor_data
+ processed_infrastructure_sensor_data.

Additional Sizing Assumptions:
None

infrastructure_data_for_archive_attributes

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

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

Additional Sizing Assumptions:
None

infrastructure_integrity_sensor_control

This data flow provides control commands for infrastructure monitoring sensors located on roadway infrastructure such as bridges, or on rail infrastructure such as tracks, etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ infrastructure_integrity_sensor_control_data}.

Additional Sizing Assumptions:
None

infrastructure_integrity_sensor_control_data

This data flow provides control commands for a single infrastructure monitoring sensor. These commands can be used to configure the sensor and to define processing parameters, including definition of thresholds for detecting failing conditions of the infrastructure. .

Additional Sizing Assumptions:
SIZE=32;

infrastructure_integrity_sensor_data

This data flow contains actual sensor readings collected from infrastructure monitoring sensors located on roadway infrastructure such as bridges, or on rail infrastructure such as tracks, etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ infrastructure_integrity_sensor_data_collected}.

Additional Sizing Assumptions:
None

infrastructure_integrity_sensor_data_collected

This data flow represents the output of a single infrastructure monitoring sensor. .

Additional Sizing Assumptions:
SIZE=32;

infrastructure_integrity_sensor_data_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from infrastructure integrity sensors located on roadway infrastructure such as bridges, or on rail infrastructure such as tracks, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ infrastructure_integrity_sensor_data_collected.

Additional Sizing Assumptions:
None

infrastructure_integrity_sensor_fault_data

This data flow is used to report the status of an infrastructure monitoring sensor, providing the sensor configuration as well as a fault indication. .

Additional Sizing Assumptions:
SIZE=24;

infrastructure_integrity_sensor_processed_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing data from infrastructure monitoring sensors. It is analyzed, correlated with other sensor data, and used to detect potential infrastructure integrity problems. .

Additional Sizing Assumptions:
SIZE=256;

infrastructure_integrity_sensor_status

This data flow is used within the Manage Emergency Services function to report the status of infrastructure monitoring sensors located on roadway infrastructure such as bridges, or on rail infrastructure such as tracks, etc. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ infrastructure_integrity_sensor_fault_data}.

Additional Sizing Assumptions:
None

infrastructure_integrity_status_for_maint

This data flow is sent from the Manage Emergency Services function to the Manage Maintenance and Construction function and contains the data collected by infrastructure monitoring sensors as well as data produced by processing that data and correlating with other sensor data. This data is collected from sensors located on roadway and transit infrastructure, such as tunnels, bridges, and rail tracks. By monitoring this data flow, the receiving process can monitor the health and current status of the infrastructure, and arrange for repair if deemed necessary. The data flow consists of the following data item which is defined in its own DDE:

infrastructure_integrity_sensor_data_collected
+ infrastructure_integrity_sensor_processed_data
+ infrastructure_condition.

Additional Sizing Assumptions:
None

infrastructure_integrity_status_for_traffic

This data flow is sent from the Manage Emergency Services function to the Manage Traffic function and contains the data collected by infrastructure monitoring sensors as well as data produced by processing that data and correlating with other sensor data. This data is collected from sensors located on roadway and transit infrastructure, such as tunnels, bridges, and rail tracks. By monitoring this data flow, the receiving process can consider the

potential for a possible incident. The data flow consists of the following data item which is defined in its own DDE:

infrastructure_integrity_sensor_data_collected
+ infrastructure_integrity_sensor_processed_data
+ infrastructure_condition.

Additional Sizing Assumptions:
None

infrastructure_integrity_status_for_transit

This data flow is sent from the Manage Emergency Services function to the Manage Transit function and contains the data collected by infrastructure monitoring sensors as well as data produced by processing that data and correlating with other sensor data. This data was collected from sensors located on transit and rail infrastructure, such as rail tracks, and indicates the current status of that infrastructure. The data flow consists of the following data item which is defined in its own DDE:

infrastructure_integrity_sensor_data_collected
+ infrastructure_integrity_sensor_processed_data
+ infrastructure_condition.

Additional Sizing Assumptions:
None

infrastructure_processed_data_for_repair_needs

This data flow is used within the Manage Maintenance and Construction function and consists of processed data concerning the condition of the infrastructure as reported from sensor equipment on the roadside and on-board maintenance and construction vehicles. This infrastructure includes bridges, culverts, signs, and other roadway infrastructure. By monitoring this data flow, the health of the infrastructure can be assessed and maintenance activities scheduled if deemed necessary. It consists of the following data item which is defined in its own DDE:

processed_infrastructure_sensor_data.

Additional Sizing Assumptions:
None

infrastructure_sensor_control_by_center_personnel

This data flow provides control commands from the maintenance and construction center personnel interface for an infrastructure monitoring sensor at the roadway. It consists of the following data item which is defined in its own DDE:

infrastructure_sensor_control_of_roadside_devices.

Additional Sizing Assumptions:
None

infrastructure_sensor_control_from_m_and_c

This data flow provides control commands from a maintenance and construction center for an infrastructure monitoring sensor at the roadway. It consists of the following data item which is defined in its own DDE:

infrastructure_sensor_control_of_roadside_devices.

Additional Sizing Assumptions:

None

infrastructure_sensor_control_from_mcv

This data flow provides control commands from a maintenance and construction vehicle for an infrastructure monitoring sensor at the roadway. It consists of the following data item which is defined in its own DDE:

infrastructure_sensor_control_of_roadside_devices.

Additional Sizing Assumptions:
None

infrastructure_sensor_control_of_onboard_devices

This data flow provides control commands from a maintenance and construction center for an infrastructure monitoring sensors on-board a maintenance and construction vehicle. .

Additional Sizing Assumptions:
SIZE=32;

infrastructure_sensor_control_of_roadside_devices

This data flow provides control commands for an infrastructure monitoring sensor at the roadway. .

Additional Sizing Assumptions:
SIZE=32;

infrastructure_sensor_data_for_m_and_c

This data flow provides data to the Manage Maintenance and Construction function on the condition of the infrastructure as reported by sensor equipment on the roadside. This infrastructure includes bridges, culverts, signs, and other roadway infrastructure. The data can either be in raw data or image form. By monitoring this data flow, the receiving process can assess the current health of the infrastructure, add it to other sources of information, and pass along to other processes for inventory update and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_data_from_roadside_devices.

Additional Sizing Assumptions:
None

infrastructure_sensor_data_for_mcv

This data flow provides data to the Manage Maintenance and Construction function on the condition of the infrastructure as reported by sensor equipment on the roadside. This infrastructure includes bridges, culverts, signs, and other roadway infrastructure. The data can either be in raw data or image form. This data is collected from the roadside equipment by the maintenance and construction vehicle and passed along to the center which can then assess the current health of the infrastructure. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_data_from_roadside_devices.

Additional Sizing Assumptions:
None

infrastructure_sensor_data_from_onboard_devices

This data flow provides data to the Manage Maintenance and Construction function on the condition of the infrastructure as reported by sensor equipment on-board a maintenance and construction vehicle. This infrastructure includes bridges, culverts, signs, and other roadway infrastructure. The data can be in raw data or image form. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{vehicle_id_for_mcv
+ sensor_identity
+ infrastructure_sensor_output}.

Additional Sizing Assumptions:
None

infrastructure_sensor_data_from_roadside_devices

This data flow provides data to the Manage Maintenance and Construction function on the condition of the infrastructure as reported by sensor equipment on the roadside. This infrastructure includes bridges, culverts, signs, and other roadway infrastructure. The data can either be in raw data or image form. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ infrastructure_sensor_output}.

Additional Sizing Assumptions:
None

infrastructure_sensor_equip_status_for_m_and_c

This data flow provides a report to the Manage Maintenance and Construction function of the status of the infrastructure sensor equipment itself. This field equipment includes sensors on bridges, culverts, signs, and other roadway infrastructure. By monitoring this data flow, the receiving process can monitor the configuration, health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_status_for_m_and_c
+ infrastructure_sensor_status_for_mcv.

Additional Sizing Assumptions:
None

infrastructure_sensor_output

This data flow contains the raw data collected from a single sensor. This data flow could include data pertaining to the condition of bridges, culverts, signs, and other roadway infrastructure. It includes metadata describing the type of data, quality of the data, etc. .

Additional Sizing Assumptions:
SIZE=128;

infrastructure_sensor_status_for_m_and_c

This data flow provides a report to the Manage Maintenance and Construction function of the status of infrastructure sensor equipment on the roadside. This field equipment includes sensors on bridges, culverts, signs, and other roadway infrastructure. By monitoring this data flow, the receiving process can monitor the configuration, health and current status of field equipment, add it to other sources of information, and pass along to

other processes for inventory update and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_status_of_roadside_devices.

Additional Sizing Assumptions:
None

infrastructure_sensor_status_for_mcv

This data flow provides a report to the Manage Maintenance and Construction function of the status of infrastructure sensor equipment on the roadside. This field equipment includes sensors on bridges, culverts, signs, and other roadway infrastructure. This data is collected from the roadside equipment by the maintenance and construction vehicle and passed along to the center which monitors the configuration, health and current status of the field equipment. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_status_of_roadside_devices.

Additional Sizing Assumptions:
None

infrastructure_sensor_status_of_onboard_devices

This data flow provides a report to the Manage Maintenance and Construction function of the status of infrastructure sensor equipment on-board a maintenance and construction vehicle. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{vehicle_id_for_mcv
+ sensor_identity
+ sensor_status}.

Additional Sizing Assumptions:
None

infrastructure_sensor_status_of_roadside_devices

This data flow provides a report to the Manage Maintenance and Construction function of the status of infrastructure sensor equipment on the roadside. This field equipment includes sensors on bridges, culverts, signs, and other roadway infrastructure. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_status}.

Additional Sizing Assumptions:
None

intermodal_archive_catalog

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

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:

None

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.

Additional Sizing Assumptions:
None

intersection_adaptive_data

This data flow is used within the Manage Traffic function and contains data about adaptive control data used by indicators that are intersection controllers to enable them to control traffic. The format of the data will depend upon the type of adaptive control being used. .

Additional Sizing Assumptions:
SIZE=50;

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. .

Additional Sizing Assumptions:
SIZE=16;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=40;

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. .

Additional Sizing Assumptions:

SIZE=1;

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}.

Additional Sizing Assumptions:
SIZE=list_size+INT_CONTROLLERS{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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=40;

intersection_phase_number

This data flow contains the number of control phases that can be driven either through centrally supplied and implemented control data or by down loading data for local implementation. The phases may themselves be used to control vehicles, bicycles, transit vehicles, pedestrians, emergency vehicles, or other specialist uses. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

intrusion_alert_device_control

This data flow contains control parameters for intrusion alert devices that have been installed in work zones or maintenance areas. These parameters may cover things such as device configuration or device reset. .

Additional Sizing Assumptions:
SIZE=8;

intrusion_alert_device_control_on_board

This data flow contains control parameters for intrusion alert devices that have been installed on a maintenance and construction vehicle. These parameters may cover things such as device configuration or device reset. .

Additional Sizing Assumptions:
SIZE=8;

intrusion_alert_device_status

This data flow contains the status of an intrusion alert device that is located in a work zone or maintenance area. This status includes the configuration of the device and an indication of any device faults. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{device_identity
    + device_status
    + device_fault}.

Additional Sizing Assumptions:
None

intrusion_alert_device_status_on_board

This data flow contains the status of an intrusion alert device that is located on a maintenance and construction vehicle. This status includes the configuration of the device and an indication of any device faults. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{device_identity
    + device_status
    + device_fault}.

Additional Sizing Assumptions:
None

intrusion_alert_for_in_vehicle_signing

This data flow contains data for use in producing an in-vehicle signage display that provides as alert that the vehicle has intruded upon a work zone area, or is about to intrude upon the work zone. .

Additional Sizing Assumptions:
SIZE=16;

intrusion_detection_device_control

This data flow contains control parameters for intrusion detection devices that have been installed in work zones or maintenance areas. These parameters may cover things such as device configuration or device reset. .

Additional Sizing Assumptions:
SIZE=8;

intrusion_detection_device_output

This data flow contains the output of an intrusion detection device indicating that an intrusion of the work zone perimeter has been detected. The output may consist of simple binary information (intrusion present or not), or it may contain information regarding the nature of the intrusion, location of the intrusion, etc. .

Additional Sizing Assumptions:
SIZE=4;

intrusion_detection_device_status

This data flow contains the status of an intrusion detection device that is located in a work zone or maintenance area. This status includes the configuration of the device and an indication of any device faults. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{device_identity
+ device_status
+ device_fault}.

Additional Sizing Assumptions:
None

intrusion_motion_sensor_control

This data flow provides control commands for intrusion or motion detection sensors located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ intrusion_motion_sensor_control_data}.

Additional Sizing Assumptions:
None

intrusion_motion_sensor_control_data

This data flow provides control commands for a single intrusion or motion detection sensor. These commands can be used to configure the sensor and to define processing parameters, including definition of thresholds for intrusion or motion detection. .

Additional Sizing Assumptions:
SIZE=32;

intrusion_motion_sensor_data

This data flow contains actual sensor readings collected from intrusion or motion detection sensors located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure. etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ intrusion_motion_sensor_data_collected}.

Additional Sizing Assumptions:
None

intrusion_motion_sensor_data_collected

This data flow represents the output of a single intrusion or motion detection sensor located in a secure area. .

Additional Sizing Assumptions:
SIZE=32;

intrusion_motion_sensor_data_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from intrusion or motion detection sensors located in areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ intrusion_motion_sensor_data_collected.

Additional Sizing Assumptions:
None

intrusion_motion_sensor_fault_data

This data flow is used to report the status of an intrusion or motion detection sensor, providing the sensor configuration as well as a fault indication. .

Additional Sizing Assumptions:
SIZE=24;

intrusion_motion_sensor_processed_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing intrusion or motion detection sensor data. It is analyzed, correlated with other sensor data, and used to detect potential threats in secure areas. .

Additional Sizing Assumptions:
SIZE=256;

intrusion_motion_sensor_status

This data flow is used within the Manage Emergency Services function to report the status of an intrusion or motion detection sensor located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ intrusion_motion_sensor_fault_data}.

Additional Sizing Assumptions:
None

issue_wide_area_alerts

This data flow requests that an alert be issued based on the information received from existing emergency centers receiving emergency calls pertaining to a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be displayed to travelers. It consists of the following data items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:
None

kiosk_identity

This data flow is used by the Provide Driver and Traveler Services function to identifies a particular kiosk. This enables the kiosk that was the source of a data request to be identified so that the requested data can be sent back to the correct kiosk. This occurs so that a rich selection of kiosk identities can be supported. .

Additional Sizing Assumptions:
SIZE=5;

lane_change_details

This data flow contains detailed data to describe how the actual automated lane change is to take place. For example, it could contain exactly where and at what speed the lane change will take place. .

Additional Sizing Assumptions:
SIZE=64;

lane_change_strategy

This data flow contains an automated lane changing strategy to set the basic operating parameters for the AHS vehicle control process. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=2;

lane_deviation

This data flow contains details of the position of the vehicle within a highway lane as computed from on-board sensors. The data describes the center, the right of center or the left of center. Both non-zero values are measured in inches up. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

lane_steering_commands

This data flow contains data showing any changes required to the vehicle's steering so that it can continue to stay in the current lane. The commands are of the form turn left, turn right, or center the steering and will be of a much smaller order of magnitude than the similar commands for changing lane. .

Additional Sizing Assumptions:
SIZE=2;

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}.

Additional Sizing Assumptions:
SIZE=list_size+LINKS{link_identity+link_journey_time+link_queue_time}+ link_state_data_for_broadcast;

link_attributes

This data flow is used within the Provide Driver and Traveler Services function and contains details of the type of road data stored for the link by a TMC or ISP. .

Additional Sizing Assumptions:
SIZE=16;

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. .

Additional Sizing Assumptions:
SIZE=2;

link_data

This data flow contains a new version of the store of link data used to determine which other TMC to contact to obtain traffic data relating to another geographic area. The data flow consists of the following data items each of which is defined in its own DDE:

link_attributes
+ link_identity
+ link_TMC_identity.

Additional Sizing Assumptions:
None

link_data_for_guidance

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveler Services function. It contains data for use in determining which other ISP('s) must be contacted to obtain data about roads and highways in geographic area(s) outside that served by the local function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{link_attributes + link_speed_limit
+ link_identity
+ link_ISP_identity}.

Additional Sizing Assumptions:
SIZE=list_size+LINKS{link_attributes+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
} .

Additional Sizing Assumptions:
SIZE=list_size+1{HIGHWAY_LINKS+ROAD_LINKS}{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}.

Additional Sizing Assumptions:
SIZE=list_size+1{HIGHWAY_LINKS+ROAD_LINKS}{link_queue_time+link_journey_time};

link_data_store

This data store is used within the Provide Driver and Traveler Services function and contains data for use in determining which other ISP must be contacted to obtain road data relating to another geographic area. It consists of the following data item which is defined in its own DDE:

link_data_for_guidance.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.
.

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
None

link_environment_conditions

This data flow contains environment conditions (e.g. rain, wind, sun, etc) computed for a single link .

Additional Sizing Assumptions:
SIZE=16;

link_identity

An identifier assigned to a link is where a link is a topological connection between two nodes. Link-IDs may be arbitrary, or may be assigned by convention to assure that multiple occurrences of the same ID will not occur within one network or within the universe of similar networks or databases. The data flow consists of the following data items each of which is defined in its own DDE:

unit_number
+ link_type
+ location_identity.

Additional Sizing Assumptions:
None

link_identity_list

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

list_size
+ list_size{link_identity}.

Additional Sizing Assumptions:
SIZE=list_size+4{link_identity};

link_ISP_identity

This data flow is used within the Provide Driver and Traveler Services function and contains the identity of other ISP's with which road links outside the local ITS geographic area are associated. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=2;

link_level_of_service

This data element contains the data for the level of service (LOS) on a particular link that is stored by a TMC. The LOS of a link can be designated between LOS A through LOS F. LOS A indicating free flowing traffic and LOS F indicating total grid lock. .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
SIZE=list_size+LINKS{link_identity};

link_list_for_highways

This data flow is used within the Manage Traffic function and contains a list of links for which data is being provided. These links will comprise all of those on the highway network served by the function. The data flow consists of the following data items each of which is defined by its own DDE:

list_size
+ 1{link_identity}list_size.

Additional Sizing Assumptions:
SIZE=list_size+HIGHWAY_LINKS{link_identity};

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.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_LINKS{link_identity};

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. .

Additional Sizing Assumptions:
SIZE=3;

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. .

Additional Sizing Assumptions:
SIZE=2;

link_speed

This data item contains an average measure of vehicle speed, for a single link or sequence of links in the transportation network. .

Additional Sizing Assumptions:
SIZE=3;

link_speed_limit

This data flow is sent from the traffic operations personnel to the Manage Traffic function and contains the posted speed limit of the vehicles using the link. It also includes speed limits for special vehicles traveling on a link. This data flow consists of the following items each of which is defined in its own DDE:

speed_limit
+ special_vehicle_speed_limit.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
SIZE=link_list+LINKS{vehicle_count+vehicle_queue_length+vehicle_speed+vehicle_headway+vehicle_occupancy};

link_state_data_for_broadcast

This data flow contains speed, occupancy, and status on each link within the road (surface street) and highway network in the geographic area relevant to the user. The data flow consists of the following items each of which is defined in its own DDE:

link_list
+ 1{vehicle_speed
  + vehicle_occupancy
  + link_occupancy
  + link_speed}list_size

+ link_status.

Additional Sizing Assumptions:
SIZE=link_list+LINKS{vehicle_speed+vehicle_occupancy+link_status};

link_status

This data element contains the data for the status of lanes on each link which is stored by a particular TMC or ISP. The lane on the link can either be closed or open. The data flow consists of the following data items each of which is defined in its own DDE:

lane_closure
+ lane_open.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
SIZE=link_list+LINKS{vehicle_count+vehicle_queue_length+vehicle_occupancy};

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}.

Additional Sizing Assumptions:
SIZE=list_size+2{LINKS}{date+time+vehicle_tag_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.

Additional Sizing Assumptions:

None

link_TMC_identity

This data flow is used within the Provide Driver and Traveler Services function and contains the identity of the TMC with which each road link is associated. .

Additional Sizing Assumptions:
SIZE=32;

link_traffic_conditions

This data flow contains processed sensor data providing traffic conditions for a single link. .

Additional Sizing Assumptions:
SIZE=128;

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. .

Additional Sizing Assumptions:
SIZE=4;

list_size

This data flow is a general parameter used throughout ITS functions to specify the number of data items included in a data flow. For example it can be the number of indicators in a strategy selection message, or the number of data items that have been collected in a particular time period. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE = 3;

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. .

Additional Sizing Assumptions:
SIZE = 256;

local_decision_support

This data flow provides data that enables emergency personnel in the field to implement an effective incident response. It includes local traffic, road, and weather conditions, hazardous material information, and the current status of resources that have been allocated to an incident. .

Additional Sizing Assumptions:
SIZE=256;

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. .

Additional Sizing Assumptions:
SIZE=1024;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

local_TMC_incidents_request

This data flow is exchanged with the other traffic centers (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.

Additional Sizing Assumptions:
None

local_transit_operator_authentication

This data flow is used by processes within the Manage Transit function. It contains the confirmation of transit vehicle operator authentication to the transit vehicle as one parameter in determining whether to disable the vehicle. This data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=22;

lock_tag_data_store

This data store is used within the Manage Commercial Vehicles function and contains the information stored in a electronic lock tag. This tag is used to control access to the cargo being carried across a border by a commercial vehicle. It consists of the following data items each of which is defined in its own DDE:

cv_lock_tag_data.

Additional Sizing Assumptions:
None

logged_special_vehicle_route

This data contains details about a route that has been requested by a special vehicle. This could be a commercial vehicle that is carrying cargo which could be viewed as being liable to cause a potential incident. Loads falling into this category are those containing hazardous (HAZMAT) material, or those which are outsize, e.g. wide, heavy, or fragile and hence slow moving. This could also include vehicles which must be specially routed (e.g. the governors motorcade). The data flow is derived from the route that has been produced for the special vehicle.

hazmat_load_data
+ list_size
+ list_size{route_segment_end_point
    + route_segment_estimated_arrival_time
    + route_segment_estimated_travel_time
    + route_segment_identity
    + route_segment_start_point}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_SEGS{route_segment_end_point
    + route_segment_estimated_arrival_time
    + route_segment_estimated_travel_time
    + route_segment_identity
    + route_segment_start_point};

long_term_data

This data store is used within the Manage Traffic function to contain data about the previous (historical) state of traffic on the road (surface street) and highway network served by the function. The data is accumulated in real time at periodic time intervals from other processes within both this and other ITS functions. The traffic flow, other routes use, o-d matrix, parking lot, processed and wide area pollution data may be stored in hourly time intervals for each day over a rolling two week period, after which it may be consolidated into a single smoothed or average set of data for normal weekday flows. The traffic management data may be stored in fifteen minute intervals daily for a long period of time as a record of the indicator state. The store consists of the following items of data each of which is defined in its own DDE:

historical_stored_incident_data
+ historical_other_routes_use
+ o_d_matrix
+ historical_parking_lot_storage_data
+ historical_processed_data
+ historical_traffic_flow_state
+ historical_vehicle_smart_probe_stored_data
+ historical_wide_area_pollution_data
+ historical_traffic_management_storage_data.

Additional Sizing Assumptions:
None

long_term_data_for_retrieval

This data flow is used within the Manage Traffic function. It contains a subset of the long term data stored by the function which will be used as the basis for traffic data that is sent to other functions. This subset may include the traffic conditions for the past several hours plus the smoothed or average flow over some longer timeframe, e.g. a weekday. The data flow consists of the following data items each of which is defined in its own DDE:

current_incident_data
+ current_other_routes_use
+ parking_lot_storage_data
+ traffic_flow_state
+ vehicle_smart_probe_stored_data
+ wide_area_pollution_data.

Additional Sizing Assumptions:
SIZE=31{current_incident_data+current_other_routes_use+parking_lot_storage_data
+traffic_flow_state+wide_area_pollution_data};

m_and_c_activity_schedule

This data store is used within the Manage Maintenance and Construction function and contains the current schedule for maintenance and construction activities. It consists of the following data items each of which is defined in its own DDE:

fleet_activity_schedule
+ work_zone_activity_plan
+ m_and_c_work_plans.

Additional Sizing Assumptions:
None

m_and_c_activity_schedule_for_archive

This data flow is used within the Manage Maintenance and Construction function and contains the current schedule for maintenance and construction activities for archival. It consists of the following data item which is defined in its own DDE:

m_and_c_activity_schedule.

Additional Sizing Assumptions:
None

m_and_c_activity_schedule_for_archive_attributes

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

quality_control_attribute
+ data_reductions
+ data_aggregation
+ collection_conditions
+ security
+ error_handling

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

Additional Sizing Assumptions:
None

m_and_c_activity_status

This data store is used within the Manage Maintenance and Construction function and contains the current status of M&C activities, including work status, materials availability, vehicle fleet status, asset status, field equipment maintenance status, and work zone status. It consists of the following data items each of which is defined in its own DDE:

materials_availability_for_status
+ m_and_c_work_performance
+ m_and_c_fleet_manager_status
+ work_zone_data_for_status.

Additional Sizing Assumptions:
None

m_and_c_activity_status_for_archive

This data flow is used within the Maintenance and Construction function and contains the current status of M&C and activities, including work status, materials availability, vehicle fleet status, asset status, field equipment maintenance status, etc. This status is created for later archival and it consists of the following data item which is defined in its own DDE:

m_and_c_activity_status.

Additional Sizing Assumptions:
None

m_and_c_activity_status_for_archive_attributes

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

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

Additional Sizing Assumptions:
None

m_and_c_activity_status_for_mdss

This data flow is used within the Maintenance and Construction function and contains the current status of M&C and activities, including work status, materials availability, vehicle fleet status, asset status, field equipment maintenance status, etc. This status is created for output to the Maintenance Decision Support System and it consists of the following data item which is defined in its own DDE:

m_and_c_activity_status.

Additional Sizing Assumptions:
None

m_and_c_activity_status_for_personnel

This data flow is used within the Maintenance and Construction function and contains the current status of M&C and activities, including work status, materials availability, vehicle fleet status, asset status, field equipment maintenance status, etc. This status is created for output to the M&C personnel and it consists of the following data item which is defined in its own DDE:

m_and_c_activity_status.

Additional Sizing Assumptions:
None

m_and_c_activity_status_for_scheduler

This data flow is used within the Maintenance and Construction function and contains the current status of M&C and activities, including work status, materials availability, vehicle fleet status, asset status, field equipment maintenance status, etc. It consists of the following data item which is defined in its own DDE:

m_and_c_activity_status.

Additional Sizing Assumptions:
None

m_and_c_archive_catalog

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

Additional Sizing Assumptions:
SIZE=32;

m_and_c_archive_catalog_request

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

Additional Sizing Assumptions:
SIZE=32;

m_and_c_archive_commands_from_personnel

This data flow is used within the Manage Maintenance and Construction function and contains a data administration commands used to control the archival of data to be used by the Manage Archived Data function. These commands may include the data that is to be archived, how the data is processed, how the data is stored, data elements that are deleted, etc. .

Additional Sizing Assumptions:
SIZE=256;

m_and_c_archive_data

This data flow from the Manage Maintenance and Construction function to the Manage Archived Data function contains the M&C data to be archived along with meta data describing the information. This data can include a catalog of the data held by the function. The data contains information about work zones, maintenance needs, maintenance and construction schedules and status, etc. This data flow contains the following items each of which is defined in its own DDE:

m_and_c_archive_catalog
+ m_and_c_data_for_archive.

Additional Sizing Assumptions:
None

m_and_c_archive_data_request

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

Additional Sizing Assumptions:
SIZE=32;

m_and_c_archive_input

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

m_and_c_archive_request
+ m_and_c_archive_status.

Additional Sizing Assumptions:
None

m_and_c_archive_request

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

m_and_c_archive_catalog_request
+ m_and_c_archive_data_request.

Additional Sizing Assumptions:
None

m_and_c_archive_status

This data flow is sent from the Manage Archived Data function to the Manage Maintenance and Construction function. It is the status returned when maintenance and construction archive data is sent to the Manage Archived Data function. .

Additional Sizing Assumptions:
SIZE=32;

m_and_c_archive_status_to_personnel

This data flow is used within the Manage Maintenance and Construction function and contains the status from the Manage Archived Data function after data was sent to the Manage Archived Data function for archival. The status may be good (the data was correct and received without error) or bad (errors were either found in the data itself or during the transmission of the data). .

Additional Sizing Assumptions:
SIZE=32;

m_and_c_center_identity

This data flow contains the identity of a maintenance and construction fleet management center that is exchanging information with its fleet of vehicles. .

Additional Sizing Assumptions:
SIZE=16;

m_and_c_data_archive

This data store is used in the Manage Maintenance and Construction function to hold data that is to be archived by the Manage Archived Data function. This data includes information concerning maintenance and construction

activities, work zone activities and intrusions, and maintenance needs information. It consists of the following data items each of which is defined in its own DDE:

m_and_c_archive_catalog
+ m_and_c_data_for_archive.

Additional Sizing Assumptions:
None

m_and_c_data_for_archive

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

m_and_c_activity_status_for_archive
+ m_and_c_activity_status_for_archive_attributes
+ m_and_c_activity_schedule_for_archive
+ m_and_c_activity_schedule_for_archive_attributes
+ m_and_c_roadway_maint_needs_for_archive
+ m_and_c_roadway_maint_needs_for_archive_attributes
+ m_and_c_maint_resource_needs_for_archive
+ m_and_c_maint_resource_needs_for_archive_attributes
+ m_and_c_winter_maint_needs_for_archive
+ m_and_c_winter_maint_needs_for_archive_attributes
+ work_zone_data_for_archive
+ work_zone_data_for_archive_attributes
+ field_device_status_for_archive
+ field_device_status_for_archive_attributes
+ auto_treatment_system_status_for_archive
+ auto_treatment_system_status_for_archive_attributes
+ infrastructure_data_for_archive
+ infrastructure_data_for_archive_attributes.

Additional Sizing Assumptions:
None

m_and_c_disaster_response_plan

This data flow contains the resources and work plan that are available from maintenance and construction that may be used for the current disaster. The data flow consists of the following data items which are defined in their own DDE:

disaster_response_m_and_c_available_resources
+ disaster_response_m_and_c_work_plan.

Additional Sizing Assumptions:
None

m_and_c_emergency_response_plan_from_personnel

This data flow is used by center personnel to coordinate disaster response and recovery plans with maintenance and construction. It contains the response from maintenance personnel regarding the modified response and recovery plan and evacuation plan. .

Additional Sizing Assumptions:

SIZE=256;

m_and_c_emergency_response_plan_to_personnel

This data flow is used within the Manage Maintenance and Construction function to present the data for the coordination of response plans between the M&C function and the Emergency management function for disasters and evacuations. This data flow is used to coordinate disaster response and recovery plans with maintenance and construction. It contains information regarding the nature of the disaster, and the preplanned response and recovery plan for maintenance. Given this information, maintenance can provide a plan that it will use that is appropriate for the given disaster. .

Additional Sizing Assumptions:
SIZE=256;

m_and_c_equipment_id

This data flow contains the identifier for a piece of maintenance and construction equipment (portable dynamic message signs, etc.). .

Additional Sizing Assumptions:
SIZE=4;

m_and_c_equipment_quantity

This data flow contains the quantity of equipment (cones, portable dynamic message signs, etc.) often used to support construction and maintenance activities. .

Additional Sizing Assumptions:
SIZE=4;

m_and_c_equipment_status

This data flow contains the status and availability of equipment (cones, portable dynamic message signs, etc.) often used to support construction and maintenance activities. .

Additional Sizing Assumptions:
SIZE=4;

m_and_c_equipment_type

This data flow contains the type of equipment (cones, portable dynamic message signs, etc.) often used to support construction and maintenance activities. .

Additional Sizing Assumptions:
SIZE=4;

m_and_c_evacuation_plan

This data flow contains the resources that are available from maintenance and construction modified from the preplanned resources that may be used for an evacuation. The data flow consists of the following data items which are defined in their own DDE:

evacuation_m_and_c_available_resources
+ evacuation_m_and_c_work_plan.

Additional Sizing Assumptions:
None

m_and_c_evacuation_resource_request

This flow contains a request for maintenance and construction in supporting an evacuation. It provides a set of requested resources, schedules, work plans, etc. that evacuation management has been told are available for use. The data flow consists of the following data item which is defined in its own DDE:

em_resource_request.

Additional Sizing Assumptions:
None

m_and_c_evacuation_resource_response

This flow contains a response from maintenance and construction in supporting an evacuation. The data flow consists of the following data item which is defined in its own DDE:

em_resource_response.

Additional Sizing Assumptions:
None

m_and_c_fleet_activity_schedule_for_maint

This data flow is used within the Manage Maintenance and Construction function and contains information on when the maintenance and construction vehicles will be available for preventive and corrective maintenance, and the vehicle utilization to assist in predicting vehicle repair or replacement needs. The data flow consists of the following data items each of which is defined in its own DDE:

fleet_maintenance_availability
+ vehicle_utilization_information.

Additional Sizing Assumptions:
None

m_and_c_fleet_manager_status

This data flow is used by the fleet management function to report the status of the fleet of maintenance and construction vehicles. It includes for each vehicle the type, equipment configuration, location, operational status, maintenance record, work activity status, and crew/operator status. Additionally, incident information and road network information are included. The data flow consists of the following data items each which is defined in its own DDE:

m_and_c_fleet_status
+ m_and_c_view_of_road_network.

Additional Sizing Assumptions:
None

m_and_c_fleet_status

This data flow is used within the Manage Maintenance and Construction function and contains a list of the maintenance and construction fleet vehicles available for use. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{vehicle_location_for_mcv
+ vehicle_id_for_mcv
+ mcv_equipment_configuration
+ mcv_vehicle_type

+ operational_data_for_mcv
+ materials_status
+ mcv_crew_status
+ mcv_operator_status
+ mcv_work_activity_status
+ safety_data_for_mcv
+ vehicle_location_for_mcv_tracking
+ date
+ time}
+ current_fleet_maintenance_status
+ fleet_maintenance_record.

Additional Sizing Assumptions:
None

m_and_c_maint_resource_needs_for_archive

This data flow consists of a report to be archived consisting of the maintenance and construction resources requested by emergency, traffic, and from within the Manage Maintenance and Construction function. These resources include portable dynamic message signs, cones, and other assets. This data flow contains the following items each of which is defined in its own DDE:

m_and_c_resource_request_from_traffic
+ m_and_c_resource_request_from_emerg
+ resource_needs_from_scheduler.

Additional Sizing Assumptions:
None

m_and_c_maint_resource_needs_for_archive_attributes

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

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

+ record_size
+ standard_data_attribute
+ standard_message_attribute.

Additional Sizing Assumptions:
None

m_and_c_materials_quantity

This data flow contains the quantity of materials (sand, salt, etc.) often used to support construction and maintenance activities. .

Additional Sizing Assumptions:
SIZE=4;

m_and_c_materials_type

This data flow contains the type of materials (sand, salt, etc.) often used to support construction and maintenance activities. .

Additional Sizing Assumptions:
SIZE=4;

m_and_c_materials_usage_rate

This data flow contains the rate of application of materials (sand, salt, etc.) often used to support construction and maintenance activities. .

Additional Sizing Assumptions:
SIZE=16;

m_and_c_plan_feedback

This data flow contains comments and suggested changes to proposed maintenance and construction work plan schedules and activities. This information will be used to influence the work schedule to minimize impact to other system operations and the transportation system. The data flow consists of the following data item which is defined in its own DDE: .

Additional Sizing Assumptions:
SIZE=32;

m_and_c_plan_feedback_from_emerg

This data flow is sent from the Manage Emergency Services function to the Manage Maintenance and Construction function. It contains comments and suggested changes to proposed maintenance and construction work plan schedules and activities. This information will be used to influence the work schedule to minimize impact to other system operations and the transportation system. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_plan_feedback.

Additional Sizing Assumptions:
None

m_and_c_plan_feedback_from_traffic

This data flow is sent from the Manage Traffic function to the Manage Maintenance and Construction function. It contains comments and suggested changes to proposed maintenance and construction work plan schedules and activities. This information will be used to influence the work schedule to minimize impact to other system operations and the transportation system. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_plan_feedback.

Additional Sizing Assumptions:
None

m_and_c_plan_feedback_from_transit

This data flow is sent from the Manage Transit function to the Manage Maintenance and Construction function. It contains comments and suggested changes to proposed maintenance and construction work plan schedules and activities. This information will be used to influence the work schedule to minimize impact to other system operations and the transportation system. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_plan_feedback.

Additional Sizing Assumptions:
None

m_and_c_preplanned_disaster_response_plan

This data flow contains the preplanned disaster response and recovery plan for maintenance and construction. These plans contain maintenance assets, schedules, etc. that has been planned to be utilize prior to the occurrence of a disaster. The data flow consists of the following data items which are defined in their own DDE:

planned_disaster_response_m_and_c_available_resources
+ planned_disaster_response_m_and_c_work_plan.

Additional Sizing Assumptions:
None

m_and_c_preplanned_evacuation_plan

This data flow contains the preplanned evacuation plan for maintenance and construction. These plans contain maintenance assets, schedules, etc. that has been planned to be utilize in support of an evacuation. The data flow consists of the following data items which are defined in their own DDE:

planned_evacuation_m_and_c_available_resources
+ planned_evacuation_m_and_c_work_plan.

Additional Sizing Assumptions:
None

m_and_c_resource_request_from_emerg

This data flow is used to request maintenance and construction resources to include portable signs, cones, and other assets that can be used to assist in incident management and clearance, including hazard removal, repair of damage, and any other incident response. .

Additional Sizing Assumptions:
SIZE=16;

m_and_c_resource_request_from_traffic

This data flow is used to request maintenance and construction resources to include portable signs, cones, and other assets that can be used to divert traffic, create detours, and otherwise manage traffic. It also includes requests for any other assets that may be needed to support of incident management. .

Additional Sizing Assumptions:
SIZE=16;

m_and_c_resource_response_to_emerg

This data flow is sent to the Manage Emergency Services function from the Manage Maintenance and Construction function to provide the status of the requested resources, including availability, contact information of the agency responding, and deployment status .

Additional Sizing Assumptions:
SIZE=8;

m_and_c_resource_response_to_traffic

This data flow is sent to the Manage Traffic function from the Manage Maintenance and Construction function to provide the status of the requested resources, including availability, contact information of the agency responding, and deployment status .

Additional Sizing Assumptions:
SIZE=8;

m_and_c_resource_status_for_needs

This data flow is used within the Manage Maintenance and Construction function and contains a list of the resources available, including equipment, maintenance and construction vehicles, and materials based on the most recent status collected. The data flow consists of the following data items each of which is defined in its own DDE:

m_and_c_resources
+ time
+ date.

Additional Sizing Assumptions:
None

m_and_c_resources

This data flow is used within the Manage Maintenance and Construction function and contains the view of the roadway network for mdss and management personnel. The data flow consists of the following data items each of which is defined in its own DDE:

materials_availability
+ fleet_vehicle_available
+ equipment_availability.

Additional Sizing Assumptions:
None

m_and_c_resources_avail

This data flow is used within the Manage Maintenance and Construction function and contains a list of the resources available, including equipment, maintenance and construction vehicles, and materials. The data flow consists of the following data items each of which is defined in its own DDE:

m_and_c_resources
+ time
+ date.

Additional Sizing Assumptions:
None

m_and_c_resources_avail_to_scheduler

This data flow is used within the Manage Maintenance and Construction function and contains a list of the resources available, including equipment, maintenance and construction vehicles, and materials for use when scheduling maintenance and construction activities. The data flow consists of the following data items each of which is defined in its own DDE:

m_and_c_resources
+ time
+ date.

Additional Sizing Assumptions:
None

m_and_c_road_network_view

This data flow is used within the Manage Maintenance and Construction function and contains the view of the roadway network for management personnel and to support the Maintenance Decision Support System (MDSS). The data flow consists of the following data items each of which is defined in its own DDE:

m_and_c_view_of_road_network_for_personnel
+ m_and_c_view_of_road_network_for_mdss.

Additional Sizing Assumptions:
None

m_and_c_roadway_maint_needs_for_archive

This data flow is used within the Manage Maintenance and Construction function and provides information for archival concerning the roadway maintenance plan, materials, and vehicle requirements, together with the time and date needed for later analysis. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{roadway_maint_plan
+ mcv_vehicle_type
+ m_and_c_materials_type
+ m_and_c_materials_quantity
+ need_date
+ need_time}.

Additional Sizing Assumptions:
None

m_and_c_roadway_maint_needs_for_archive_attributes

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

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

Additional Sizing Assumptions:
None

m_and_c_roadway_needs_to_scheduler

This data flow is used within the Manage Maintenance and Construction function and assists the maintenance activity scheduler by providing the roadway maintenance plan, materials, and vehicle requirements, together with the time and date needed. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{roadway_maint_plan
+ mcv_vehicle_type
+ m_and_c_materials_type
+ m_and_c_materials_quantity
+ need_date
+ need_time}.

Additional Sizing Assumptions:
None

m_and_c_status_from_mcv_operator

This data flow is sent from the maintenance and construction vehicle operator via on-board systems to the vehicle fleet operator and contains the current maintenance and construction status information such as work data, operator

status, vehicle_status, and crew status to the vehicle fleet manager. This data flow consists of the following items each of which is defined in its own DDE:

vehicle_id_for_mcv
+ mcv_status_from_operator
+ mcv_crew_status
+ mcv_operator_status
+ mcv_work_activity_status
+ date
+ time.

Additional Sizing Assumptions:
None

m_and_c_to_emergency

This DFD flow represents the data flows from Manage Maintenance and Construction to Manage Emergency Services. The DFD flow consists of the following data flows each of which is defined in there its DDE:

incident_info_for_emerg
+ m_and_c_work_plans_for_emerg
+ asset_restrictions_for_emerg
+ roadway_maint_status_for_emerg
+ m_and_c_resource_response_to_emerg
+ work_zone_info_for_emergency
+ road_weather_info_for_emergency
+ alert_notification_status_from_maint
+ disaster_and_evacuation_data_from_m_and_c
+ road_network_status_for_disaster_and_evacuation.

Additional Sizing Assumptions:
None

m_and_c_to_traffic

This DFD flow represents the data flows from Manage Maintenance and Construction to Manage Traffic. The DFD flow consists of the following data flows each of which is defined in its own DDE:

incident_info_for_traffic
+ m_and_c_work_plans_for_traffic
+ m_and_c_resource_response_to_traffic
+ environmental_sensor_control_for_roadway
+ environmental_sensor_control_for_roadway_sensors
+ environmental_sensor_data_for_roadway
+ road_weather_info_for_traffic
+ infrastructure_sensor_control_from_mcv
+ roadway_m_and_c_to_traffic
+ roadway_m_and_c_device_data_to_traffic
+ work_zone_surveillance_data
+ work_zone_device_control_data
+ work_zone_incident_data
+ m_and_c_view_of_road_network_for_traffic.

Additional Sizing Assumptions:
None

m_and_c_to_transit

This DFD flow represents the data flows from Manage Maintenance and Construction to Manage Transit. The DFD flow consists of the following data flows each of which is defined in its own DDE:

m_and_c_work_plans_for_transit
+ roadway_maint_status_for_transit
+ asset_restrictions_for_transit
+ work_zone_info_for_transit
+ road_weather_info_for_transit.

Additional Sizing Assumptions:
None

m_and_c_to_traveler

This DFD flow represents the data flows from Manage Maintenance and Construction to Provide Driver and Traveler Services. The DFD flow consists of the following data flows each of which is defined in its own DDE:

intrusion_alert_for_in_vehicle_signing
+ work_zone_intrusion_alert_on_board_for_in_vehicle_signing
+ road_weather_info_for_isp.

Additional Sizing Assumptions:
None

m_and_c_transportation_system_status_for_disaster

This data flow consists of a report of the current status of the transportation system. This data is reported to maintenance and construction as an ongoing status during a disaster. The data flow consists of the following data item which is defined in its own DDE:

disaster_transportation_system_status.

Additional Sizing Assumptions:
None

m_and_c_transportation_system_status_for_evacuation

This data flow consists of a report of the current status of the transportation system. This data is reported to maintenance and construction as an ongoing status during an evacuation. The data flow consists of the following data item which is defined in its own DDE:

evacuation_transportation_system_status.

Additional Sizing Assumptions:
None

m_and_c_vehicle_maintenance_info

This data flow is used within the Manage Maintenance and Construction function and contains the repair status of the equipment at the repair facility. It consists of the following data items each of which is defined in its own DDE:

current_fleet_maintenance_status
+ fleet_maintenance_record.

Additional Sizing Assumptions:
None

m_and_c_view_of_road_network

This data flow is used within the Manage Maintenance and Construction function and contains a view of the road network appropriate for assisting the maintenance and construction center personnel, the vehicle fleet manager when dispatching and routing vehicles, and the automated Maintenance Decision Support function. This information represents a consolidation of inputs from private vehicle probes, road network information including travel times, route usage, and incidents and incident response, and environmental information collected from the Manage Traffic and Manage Emergency Services functions. A listing of incident and weather data is provided, as well as a listing by link of road network data, roadway conditions, etc. The data flow consists of the following items each of which is defined in its own DDE:

incident_number
+ incident_location
+ incident_start_time
+ incident_duration
+ incident_type
+ incident_severity
+ incident_traffic_impact
+ incident_response_status_from_emerg
+ env_info_for_road_network
+ link_state_data
+ roadway_environment_conditions
+ asset_damage
+ predicted_road_network_data
+ current_data
+ evacuation_information_for_m_and_c.

Additional Sizing Assumptions:
None

m_and_c_view_of_road_network_for_disaster

This data flow contains a view of the road network for assessing the status of the network in support of disaster response and recovery. This flow may contain a high level assessment of the status of the transportation infrastructure or details concerning specific restrictions by location or changes to routes and levels of service during a disaster. .

Additional Sizing Assumptions:
SIZE=1024;

m_and_c_view_of_road_network_for_evacuation

This data flow contains a view of the road network for assessing the status of the network in support of an evacuation. This flow may contain a high-level assessment of the status of the transportation infrastructure or details concerning specific restrictions by location or changes to routes and levels of service during an evacuation. .

Additional Sizing Assumptions:
SIZE=1024;

m_and_c_view_of_road_network_for_fleet_manager

This data flow is used within the Manage Maintenance and Construction function and contains a view of the road network appropriate for supporting the maintenance and construction vehicle fleet manager when dispatching and routing vehicles and assigning work activities. This information represents a consolidation of inputs from private vehicle probes, road network information including travel times, route usage, and incidents and incident response, and environmental information collected from the Manage Traffic and Manage Emergency Services functions. The data flow consists of the following item which is defined in its own DDE:

m_and_c_view_of_road_network.

Additional Sizing Assumptions:
None

m_and_c_view_of_road_network_for_mdss

This data flow is used within the Manage Maintenance and Construction function and contains a view of the road network appropriate for assisting the Manage Maintenance Decision Support function. This information represents a consolidation of inputs from private vehicle probes, road network information including travel times, route usage, and incidents and incident response, and environmental information collected from the Manage Traffic and Manage Emergency Services functions. The data flow consists of the following item which is defined in its own DDE:

m_and_c_view_of_road_network.

Additional Sizing Assumptions:
None

m_and_c_view_of_road_network_for_personnel

This data flow is used within the Manage Maintenance and Construction function and contains a view of the road network appropriate for supporting the maintenance and construction personnel. This information represents a consolidation of inputs from private vehicle probes, road network information including travel times, route usage, and incidents and incident response, and environmental information collected from the Manage Traffic and Manage Emergency Services functions. The data flow consists of the following item which is defined in its own DDE:

m_and_c_view_of_road_network.

Additional Sizing Assumptions:
None

m_and_c_view_of_road_network_for_traffic

This data flow is used within the Manage Maintenance and Construction function and contains a view of the road network to send to traffic management. This information represents a consolidation of inputs from private vehicle probes, road network information including travel times, route usage, and incidents and incident response, and environmental information collected from the Manage Traffic and Manage Emergency Services functions. The data flow consists of the following item which is defined in its own DDE:

m_and_c_view_of_road_network.

Additional Sizing Assumptions:
None

m_and_c_winter_maint_needs_for_archive

This data flow is used within the Manage Maintenance and Construction function and provides information for archival concerning the winter treatment plan, materials, and vehicle requirements, together with the time and date needed for later analysis. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{winter_treatment_plan
+ mcv_vehicle_type
+ m_and_c_materials_type
+ m_and_c_materials_quantity
+ need_date

+ need_time}.

Additional Sizing Assumptions:
None

m_and_c_winter_maint_needs_for_archive_attributes

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

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

Additional Sizing Assumptions:
None

m_and_c_winter_needs_to_scheduler

This data flow is used within the Manage Maintenance and Construction function and assists the maintenance activity scheduler by providing the winter treatment plan, materials, and vehicle requirements, together with the time and date needed. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{winter_treatment_plan
+ mcv_vehicle_type
+ m_and_c_materials_type
+ m_and_c_materials_quantity
+ need_date
+ need_time}.

Additional Sizing Assumptions:
None

m_and_c_work_performance

This data flow is used within the Manage Maintenance and Construction function and contains data about the status of the work activity performed in the field, including a work activity identifier, progress against expectations, work issues, etc. .

Additional Sizing Assumptions:
SIZE=32;

m_and_c_work_plans

This data flow contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. .

Additional Sizing Assumptions:
SIZE=16;

m_and_c_work_plans_for_emerg

This data flow is sent from the Manage Maintenance and Construction function to the Manage Emergency Services function. It contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans.

Additional Sizing Assumptions:
None

m_and_c_work_plans_for_info_provider

This data flow is sent from the Manage Maintenance and Construction function to the Provide Driver and Traveler Services function. It contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans.

Additional Sizing Assumptions:
None

m_and_c_work_plans_for_traffic

This data flow is sent from the Manage Maintenance and Construction function to the Manage Traffic function. It contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans.

Additional Sizing Assumptions:
None

m_and_c_work_plans_for_transit

This data flow is sent from the Manage Maintenance and Construction function to the Manage Transit function. It contains information about scheduled maintenance and construction work activities including anticipated closures

and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans.

Additional Sizing Assumptions:
None

maint_dec_support_parameter_updates

This data flow is within the Manage Maintenance and Construction function and contains the information required to control the maintenance decision support processing function. .

Additional Sizing Assumptions:
SIZE=4096;

manual_brake_input_detected

This data flow provides feedback that the driver has activated the vehicle brakes manually. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

map_archive_catalog

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

Additional Sizing Assumptions:
SIZE=32;

map_archive_catalog_request

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

Additional Sizing Assumptions:
SIZE=32;

map_archive_data_request

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

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=10240000;

map_data_for_archive

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

imported_map_data_for_archive
+ imported_map_data_attributes.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

map_data_for_emergency_display

This data store is used within the Manage Emergency Services function and contains digitized map data. This data is used as background for displays of data about incidents and emergencies. The map data will enable incidents and emergencies to be shown in their location context thus improving the understanding of their impact and the possible responses by the emergency system operator. The data store consists of the following data item which is defined in its own DDE:

map_data_store_contents.

Additional Sizing Assumptions:
None

map_data_for_fleet_managers

This data flow is used within the Manage Commercial Vehicles function and contains digitized map data which will be used by the commercial fleet manager's static route selection process. It consists of the following data item which is defined in its own DDE:

map_data.

Additional Sizing Assumptions:
None

map_data_for_general_use

This data store is used by processes in the Provide Driver and Traveler Services functions as a source of digitized data on the physical layout of the road and highway network. This is provided by the map update provider which is a specialist supplier of this type of data that is outside of ITS. The store consists of the following data item which is defined in its own DDE:

map_data_store_contents.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

map_data_for_m_and_c_display

This data store is used within the Manage Maintenance and Construction function and contains digitized map data. This data is used as background for displays of data about maintenance and construction activities, including work zones. The map data will also be used as a background for displays of vehicle locations and speed for maintenance and construction vehicle fleet management. The data store consists of the following data item which is defined in its own DDE:

map_data_store_contents.

Additional Sizing Assumptions:
None

map_data_for_m_and_c_routing

This data store is used within the Manage Maintenance and Construction function and contains digitized map data. This data is used as background for displays to assist in maintenance and construction vehicle routing. The data flow consists of the following data item which is defined in its own DDE:

map_data_for_m_and_c_display.

Additional Sizing Assumptions:
None

map_data_for_m_and_c_status_display

This data flow is used within the Manage Maintenance and Construction function and contains digitized map data. This data is used as background for displays of data about maintenance and construction activities. The data flow consists of the following data item which is defined in its own DDE:

map_data_for_m_and_c_display.

Additional Sizing Assumptions:
None

map_data_for_m_and_c_tracking_display

This data flow is used within the Manage Maintenance and Construction function and contains digitized map data. This data is used as background for displays of data to assist in tracking maintenance and construction vehicles. The data flow consists of the following data item which is defined in its own DDE:

map_data_for_m_and_c_display.

Additional Sizing Assumptions:
None

map_data_for_m_and_c_wz_status_display

This data flow is used within the Manage Maintenance and Construction function and contains digitized map data. This data is used as background for displays of data about work zone activities. The data flow consists of the following data item which is defined in its own DDE:

map_data_for_m_and_c_display.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

map_data_for_route_selection

This data store is used by processes in the Provide Driver and Traveler Services function as a source of digitized data on the physical layout of the road and highway network. This is provided by the map update provider which is a specialist supplier of this type of data that is outside of ITS. The store consists of the following data item which is defined in its own DDE:

map_data_store_contents.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

map_data_for_transit

This data store is used within the Manage transit function and contains digitized map data. This data is for use in generating transit routes and as the background to displays of data about transit services requested by the transit system operator. The map data will enable the services to be shown in their location context thus improving the understanding by the transit system operator. Maps of the transit route network will be produced to suit the geometry of the actual display unit on which the data will be shown in either visual or hardcopy format. The data store consists of the following data item which is defined in its own DDE:

map_data_store_contents.

Additional Sizing Assumptions:
None

map_data_for_traveler_displays

This data store is used in the Manage Traveler Information facility within the Provide Driver and Traveler Services function. It contains digitized map data for use as background to displays of trip information requested by the traveler from a kiosk. The map data will enable the trip information to be output to be shown at the kiosk against a

background that includes its location context to enable travelers to understand it more easily. It consists of the following data item which is defined in its own DDE:

map_data_store_contents.

Additional Sizing Assumptions:
None

map_data_for_traveler_personal_displays

This data store is used in the Manage Traveler Information facility within the Provide Driver and Traveler Services function. It contains digitized map data for use as background to displays of trip information requested by the traveler from a personal device. The map data will enable the trip information to be output to be shown on the device against a background that includes its location context to enable travelers to understand it more easily. It consists of the following data item which is defined in its own DDE:

map_data_store_contents.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=614400;

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. .

Additional Sizing Assumptions:

SIZE=204800;

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. .

Additional Sizing Assumptions:
SIZE=204800;

map_link_identity_data

This data flow is used by many processes within ITS functions and forms part of the store of digitized map data. It contains data about the physical characteristics of each link in the road network that enables navigation, e.g. low bridges, sharp bends, one-way streets, physical and administrative turning restrictions, tolls (including schedules), and the required permits and duties for commercial vehicles. .

Additional Sizing Assumptions:
SIZE=614400;

map_transit_data

This data flow forms part of the store of digitized map data. It contains data which enables maps of the transit route network to be produced. These will be produced to suit the geometry of the actual display unit on which the data will be shown in either visual or hardcopy format. .

Additional Sizing Assumptions:
SIZE=614400;

materials_availability

This data flow is used within the Manage Maintenance and Construction function and contains data about the types and quantities of materials available at the storage facilities to assist in assessing resource availability. It consists of the following data items each of which is defined in its own DDE:

storage_facility_id
+ materials_status.

Additional Sizing Assumptions:
None

materials_availability_for_status

This data flow is used within the Manage Maintenance and Construction function and contains data about the types and quantities of materials available at the storage facilities. It is used to assist in determining the current status of materials usage and availability in maintenance and construction activities. It consists of the following data items each of which is defined in its own DDE:

storage_facility_id
+ materials_status.

Additional Sizing Assumptions:
None

materials_status

This data flow is used within the Manage Maintenance and Construction function and contains information about the types and quantities of materials used for construction and maintenance activities. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{m_and_c_materials_type
+ m_and_c_materials_quantity
+ m_and_c_materials_usage_rate
+ date
+ time}.

Additional Sizing Assumptions:
None

materials_status_onboard_to_mcv_operator

This data flow is used within the Manage Maintenance and Construction function and contains information about the types of materials stored on-board the vehicle and the materials usage rates for use by the maintenance and construction vehicle operator. It consists of the following data items each of which is defined in its own DDE:

materials_status.

Additional Sizing Assumptions:
None

materials_status_request

This data flow is used within the Manage Maintenance and Construction function and contains a request for an update on data about the types and quantities of materials available at the storage facility. .

Additional Sizing Assumptions:
SIZE=8;

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. .

Additional Sizing Assumptions:
SIZE=32;

mayday_emergency_data

This data flow is used by the Process Mayday Messages function to forward emergency calls and emergency data from vehicle operators and travelers using personal devices that has been classified as Mayday data to another process where it is then distributed. It contains the following data items, each of which is contained in its own DDE:

emergency_request_driver_details
+ emergency_request_vehicle_details
+ emergency_request_personal_traveler_details
+ mayday_vehicle_tracking
+ mayday_agency_ID.

Additional Sizing Assumptions:
None

mayday_request_to_operator

This data flow is used within the Manage Emergency Services function to inform the center personnel that a request for emergency assistance has been issued by a driver, automatically by his vehicle, or by a traveler using a personal device. It contains the following data items each of which is defined in its own DDE:

time
+ emergency_request_driver_details
+ emergency_request_vehicle_details
+ emergency_request_personal_traveler_details.

Additional Sizing Assumptions:
None

mayday_response_from_operator

This data flow is used within the Manage Emergency Services function to confirm that the request for emergency assistance previously sent to the center personnel by a driver, automatically by his vehicle, or by a traveler using a personal device has been received. The data flow contains the following data items each of which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
None

mcv_crew_status

This data flow is used within the Manage Maintenance and Construction function and contains data about the field personnel working on a given maintenance and construction activity. It includes some form of personnel identifiers, vehicle assignments, and other pertinent crew status. .

Additional Sizing Assumptions:
SIZE=32;

mcv_dispatch_instructions

This data is used within the Manage Maintenance and Construction function and contains dispatch instructions, including corrective actions, from the vehicle fleet manager based on input parameters from center personnel. .

Additional Sizing Assumptions:
SIZE=16;

mcv_equipment_configuration

This data flow contains the configuration of the equipment on a maintenance and construction vehicle. For example, this could include the types of special attachments to the vehicle that transform a snowplow truck into some other type of maintenance vehicle during the summer. .

Additional Sizing Assumptions:
SIZE=2;

mcv_infrastructure_sensor_control

This data flow provides control commands from a maintenance and construction center for infrastructure monitoring sensors located on maintenance and construction vehicles and on roadside equipment. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_control_of_onboard_devices
+ infrastructure_sensor_control_from_mcv.

Additional Sizing Assumptions:
None

mcv_infrastructure_sensor_data

This data flow provides data to the Manage Maintenance and Construction function on the condition of the infrastructure as reported by sensors on maintenance and construction vehicles and roadside equipment. This infrastructure includes bridges, culverts, signs, and other roadway infrastructure. The data can be in raw data or image form. The data is collected by the maintenance and construction vehicle and passed along to a center which can then assess the current health of the infrastructure. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_data_from_onboard_devices
+ infrastructure_sensor_data_for_mcv.

Additional Sizing Assumptions:
None

mcv_infrastructure_sensor_status

This data flow provides a report to the Manage Maintenance and Construction function of the status of infrastructure sensors collected from vehicle sensors on maintenance and construction vehicles and roadside equipment. This field equipment includes sensors on bridges, culverts, signs, and other roadway infrastructure. By monitoring this data flow, the receiving process can monitor the configuration, health and current status of field equipment, add it to other sources of information, and pass along to other processes for inventory update and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_status_of_onboard_devices
+ infrastructure_sensor_status_for_mcv.

Additional Sizing Assumptions:
None

mcv_materials_status

This data flow is used within the Manage Maintenance and Construction function and contains information about the types of materials stored on-board the vehicle and the materials usage rates for use by the vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

vehicle_id_for_mcv

+ materials_status.

Additional Sizing Assumptions:
None

mcv_operational_data

This data flow is used within the Manage Maintenance and Construction function and contains information about the maintenance and construction activity performed by the vehicle. Operational data includes the operational state of the maintenance equipment (e.g., blade up/down, spreader pattern) and a record of the actual work performed for use by the vehicle fleet manager. It consists of the following data items each of which is defined in its own DDE:

vehicle_id_for_mcv
+ mcv_equipment_configuration
+ mcv_vehicle_type
+ operational_data_for_mcv.

Additional Sizing Assumptions:
None

mcv_operator_status

This data flow is used within the Manage Maintenance and Construction function and contains data about the operator or a maintenance and construction vehicle, including some form of personnel identifier, vehicle assignment, and other pertinent driver status. .

Additional Sizing Assumptions:
SIZE=32;

mcv_status_from_operator

This data flow is sent from the maintenance and construction vehicle operator via on-board systems to the vehicle fleet operator and contains the current status of the maintenance and construction vehicle, as reported by the operator. .

Additional Sizing Assumptions:
SIZE=16;

mcv_tracking_data_for_fleet_manager

This data flow is used within the Manage Maintenance and Construction function and contains location data and analysis for each maintenance and construction vehicle in the fleet, including the speed, and historical tracking data. This data is used to provide a complete view of the status of the maintenance and construction vehicle fleet to the vehicle fleet manager. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{vehicle_id_for_mcv
+ vehicle_location_for_mcv_tracking
+ vehicle_location_for_mcv_tracking_history
+ vehicle_speed
+ vehicle_location_analysis_outputs}
+ list_size{m_and_c_equipment_type
+ m_and_c_equipment_id}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_ACTIVE_MCV{vehicle_id_for_mcv
+ vehicle_location_for_mcv_tracking
+ vehicle_location_for_mcv_tracking_history

+ vehicle_location_analysis_outputs
+ vehicle_speed}+NUM_MC_EQUIP{m_and_c_equipment_type
+ m_and_c_equipment_id};

mcv_tracking_data_for_personnel

This data flow is used within the Manage Maintenance and Construction function and contains location data for each piece of maintenance and construction equipment and vehicle in the fleet, including the speed, and historical tracking data. This data is used to provide a complete view of the status of the maintenance and construction center personnel. The data flow consists of the following data items each of which is defined in its own DDE:

list_size{vehicle_id_for_mcv
+ vehicle_location_for_mcv_tracking
+ vehicle_location_for_mcv_tracking_history
+ vehicle_speed
+ vehicle_location_analysis_outputs}
+ list_size{m_and_c_equipment_type
+ m_and_c_equipment_id}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_ACTIVE_MCV{vehicle_id_for_mcv
+ vehicle_location_for_mcv_tracking
+ vehicle_location_for_mcv_tracking_history
+ vehicle_location_analysis_outputs
+ vehicle_speed}+NUM_MC_EQUIP{m_and_c_equipment_type
+ m_and_c_equipment_id};

mcv_vehicle_systems_control_by_fleet_manager

This data flow is used by the maintenance and construction vehicle fleet manager to remotely control the systems on-board the maintenance and construction vehicle, and includes control data to support materials dispersion and other functions depending upon the type of vehicle. These control parameters include device configuration, system reset, or activation. .

Additional Sizing Assumptions:
SIZE = 16;

mcv_vehicle_type

This data flow is used within the Manage Maintenance and Construction function and contains information about the type of maintenance and construction vehicle. This flow represents an identifier to distinguish between snowplows, bucket trucks, salt/sand trucks, etc. .

Additional Sizing Assumptions:
SIZE=2;

mcv_winter_dispatch_instructions

This data is used within the Manage Maintenance and Construction function and contains dispatch instructions for vehicle operators from the fleet manager based on input parameters from center personnel, specifically for winter conditions. This could include a treatment route, treatment application rates, start and end times, and other treatment instructions. .

Additional Sizing Assumptions:
SIZE=16;

mcv_work_activity_status

This data flow is used within the Manage Maintenance and Construction function and contains data about the status of the work activity performed in the field, including a work activity identifier, progress against expectations, work issues, etc. .

Additional Sizing Assumptions:
SIZE=32;

mdss_recommended_actions_for_operator

This data flow is used within the Manage Maintenance and Construction function and contains the recommended roadway treatment actions output from the maintenance decision support system function. .

Additional Sizing Assumptions:
SIZE=64;

mdss_recommended_actions_for_personnel

This data flow is used within the Manage Maintenance and Construction function and contains a recommended course of action generated by the automated Maintenance Decision Support System, based on processing parameters input by the center personnel. The recommended actions result from inputs including environmental conditions, road network information, maintenance and construction activity status, and available resources. .

Additional Sizing Assumptions:
SIZE=256;

mdss_recommended_actions_for_resource_needs

This data flow is used within the Manage Maintenance and Construction function and contains a recommended course of action for managing resource needs. It is generated by the automated Maintenance Decision Support System and based on processing parameters input by the center personnel. The recommended actions result from inputs including environmental conditions, road network information, maintenance and construction activity status, and available resources. .

Additional Sizing Assumptions:
SIZE=256;

mdss_recommended_actions_for_roadway_maint_needs

This data flow is used within the Manage Maintenance and Construction function and contains a recommended course of action for routine roadway maintenance generated by the automated Maintenance Decision Support System, based on processing parameters input by the center personnel. The recommended actions result from inputs including environmental conditions, road network information, maintenance and construction activity status, and available resources. .

Additional Sizing Assumptions:
SIZE=256;

mdss_recommended_actions_for_winter_treatment_needs

This data flow is used within the Manage Maintenance and Construction function and contains a recommended course of action for winter maintenance generated by the automated Maintenance Decision Support System, based on processing parameters input by the center personnel. The recommended actions result from inputs including environmental conditions, road network information, maintenance and construction activity status, and available resources. .

Additional Sizing Assumptions:
SIZE=256;

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. .

Additional Sizing Assumptions:
SIZE=32;

media_incident_data_updates

This data flow is used within the Manage Traffic function. It contains changes to the data about incidents in the current incidents data stores, which have been input by the Media. It consists of one of the following data items each of which is defined in its own DDE:

current_incidents_data
+ media_identity.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=64;

meso_scale_surface_trans_weather_forecasts

This data flow contains forecasts of surface transportation related weather variables and weather related events at time horizons from one to several hours and spatial horizon of one to 100 km. The time horizon is defined as the time between the observations on which the forecast is based (alternatively, when the forecast process is started) and the time that the forecast applies to. Weather forecasts of this scale could include 'nowcasts'. It consists of the following data items each of which is defined in its own DDE:

surface_trans_weather_forecast_details
+ surface_trans_weather_advisories.

Additional Sizing Assumptions:
None

meso_scale_weather_forecasts

This data flow contains forecasts of atmospheric weather variables and weather related events at time horizons from one to several hours and spatial horizon of one to 100 km. The time horizon is defined as the time between the observations on which the forecast is based (alternatively, when the forecast process is started) and the time that the forecast applies to. Weather forecasts of this scale could include 'nowcasts'. It consists of the following data items each of which is defined in its own DDE:

weather_forecast_details
+ weather_warnings
+ weather_watches
+ weather_advisories.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

micro_scale_surface_trans_weather_forecasts

This data flow contains forecasts of surface transportation related weather variables and weather related events at a time horizon of several minutes and a spatial horizon of several meters or less. The time horizon is defined as the time between the observations on which the forecast is based (alternatively, when the forecast process is started) and the time that the forecast applies to. It consists of the following data item which is defined in its own DDE:

surface_trans_weather_forecast_details.

Additional Sizing Assumptions:
None

miso_scale_surface_trans_weather_forecasts

This data flow contains forecasts of surface transportation related weather variables and weather related events at time horizons from approximately minutes to an hour, and a spatial horizon of meters to a kilometer. The time horizon is defined as the time between the observations on which the forecast is based (alternatively, when the forecast process is started) and the time that the forecast applies to. Weather forecasts of this scale could include 'nowcasts'. It consists of the following data items each of which is defined in its own DDE:

surface_trans_weather_forecast_details
+ surface_trans_weather_advisories.

Additional Sizing Assumptions:
None

miso_scale_weather_forecasts

This data flow contains forecasts of atmospheric weather variables and weather related events at time horizons from approximately minutes to an hour, and a spatial horizon of meters to a kilometer. The time horizon is defined as the time between the observations on which the forecast is based (alternatively, when the forecast process is started) and the time that the forecast applies to. Weather forecasts of this scale could include 'nowcasts'. It consists of the following data items each of which is defined in its own DDE:

weather_forecast_details
+ weather_warnings
+ weather_advisories.

Additional Sizing Assumptions:
None

modes

This data flow is used within many functions and forms part of the data used for route requests and trip plans. It defines the mode(s) of transport to be used on a requested route or proposed trip. The following different modes are

supported and may be used in any trip request. The transportation modes may include but are not limited to own private car, part of public transit services, scheduled air service, sea borne transport other than ferry, passenger or vehicle ferry, pedal or motor powered bicycle, walking, van pool, car pool, express bus service, specialized_service, and emergency vehicle. .

Additional Sizing Assumptions:
SIZE=18;

multi_use_trail_information

This data flow contains details contains details for multi-use trail information (available trails, trails under construction, etc.) available to pedestrians and bicycle travelers. .

Additional Sizing Assumptions:
SIZE=20480;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

multimodal_crossing_sensor_data

This data flow is used within the Manage Traffic function and contains the multimodal crossing data obtained from processing the other inputs from sensors around the road network. It consists of the following data items each of which is defined in its own DDE:

crossing_list + 1{crossing_close_time
+ crossing_close_duration}crossing_list.

Additional Sizing Assumptions:
SIZE=crossing_list+CROSSINGS{crossing_close_time+crossing_close_duration};

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

multimodal_service_arrival_time

This data flow is used within the Provide Driver and Traveler Services function. It contains the time at which a multimodal service must arrive at the destination for this type of service within a traveler's proposed trip plan. The destination may not be the final destination of the trip, or of the multimodal service. The time may also have to fit in with other modes of travel being used by the trip plan. The data flow consists of the following data item which is defined in its own DDE:

time.

Additional Sizing Assumptions:
None

multimodal_service_confirm

This data flow is used within the Provide Driver and Traveler Services function to confirm that a traveler wishes to make use of alternate mode services as part of a proposed trip. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ multimodal_services_details.

Additional Sizing Assumptions:
None

multimodal_service_confirmation

This data flow is used within the Provide Driver and Traveler Services function to confirm that a traveler's request for an alternate mode service booking has been accepted. It consists of the following data item which is defined in its own DDE:

reservation_status
+ traveler_identity.

Additional Sizing Assumptions:
None

multimodal_service_data_request

This data flow is used within the Provide Driver and Traveler Services function. It contains a request for data about multimodal (non roadway) services that are available for use as part of a traveler's trip plan. The request specifies the origin and destination of the multimodal service, which may not be the same as those for the trip plan as a whole, plus the modes that can be considered, the arrival and departure times and multimodal transfer points and clusters. The data flow consists of the following data items each of which is defined in its own DDE:

multimodal_service_arrival_time
+ multimodal_service_departure_time
+ multimodal_service_destination
+ multimodal_service_origin
+ multimodal_service_possible_modes
+ multimodal_transit_transfer_clusters.

Additional Sizing Assumptions:
None

multimodal_service_data_response

This data flow is used within the Provide Driver and Traveler Services function. It contains the response to the request for data about the multimodal (non roadway) service available, including transfer points, that will suit a traveler's proposed trip plan. The data flow consists of the following data items each of which is defined in its own DDE:

air_services_details
+ ferry_services_details
+ rail_services_details
+ transit_transfer_cluster_list
+ non_motorized_services_details.

Additional Sizing Assumptions:
None

multimodal_service_departure_time

This data flow is used within the Provide Driver and Traveler Services function. It contains the time at which a multimodal service must depart from the origin for this type of service within a traveler's proposed trip plan. The origin may not be the start point of the trip, or of the multimodal service. The time may also have to fit in with other modes of travel being used by the trip plan. The data flow consists of the following data item which is defined in its own DDE:

time.

Additional Sizing Assumptions:
None

multimodal_service_destination

This data flow is used within the Provide Driver and Traveler Services function. It contains the destination of a multimodal service within a traveler's proposed trip plan. It may not be the final destination of the trip, or of the multimodal service and may have to fit in with other modes of travel being used by the trip plan. The data flow consists of the following data item which is defined in its own DDE:

route_point.

Additional Sizing Assumptions:
None

multimodal_service_details_data

This data store is used within the Provide Driver and Traveler Services function. It contains data about air, heavy rail and ferry services that has been supplied by the multimodal transportation service providers. This data has been obtained in response to the requirements of traveler's trip plan requests and are retained to reduce the number of times the providers have to be accessed to provide the data. This store contains the following data items each of which is defined in its own DDE:

air_services_details
+ ferry_services_details
+ rail_services_details.

Additional Sizing Assumptions:
SIZE=20{air_services_details}+5{ferry_services_details}+10{rail_services_details};

multimodal_service_info_511_request

This data flow is used within the Provide Driver and Traveler Services function and contains a request for details of ferry and rail services, as well as airport status for use by a 511 traveler information system. The data flow consists of the following data items each of which is defined in its own DDE:

multimodal_service_request
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
None

multimodal_service_info_for_511

This data flow is used within the Provide Driver and Traveler Services function and contains details of ferry and rail services, as well as airport status for use by a 511 traveler information system. The data flow consists of the following data items each of which is defined in its own DDE:

air_services_status
+ ferry_services_details
+ rail_services_details
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
None

multimodal_service_origin

This data flow is used within the Provide Driver and Traveler Services function. It contains the origin of a multimodal service within a traveler's proposed trip plan. It may not be the start point of the trip, or of the multimodal service and may have to fit in with other modes of travel being used by the trip plan. The data flow consists of the following data item which is defined in its own DDE:

route_point.

Additional Sizing Assumptions:
None

multimodal_service_possible_modes

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

Additional Sizing Assumptions:
SIZE=3;

multimodal_service_request

This data flow contains a request for details of ferry and rail services, as well as airport status for use by travelers. .

Additional Sizing Assumptions:
SIZE=1;

multimodal_services_details

This data flow is used within the Provide Driver and Traveler Services function. It contains details of services provided by non-road based transportation service providers such as heavy rail companies, ferry operators and airlines that are best suited to a traveler's trip plan. The data flow consists of the following data items each of which is defined in its own DDE:

air_services_details
+ ferry_services_details
+ transit_transfer_cluster_list
+ transit_transfer_point_list
+ rail_services_details.

Additional Sizing Assumptions:
None

multimodal_transit_transfer_clusters

This data flow contains transfer points and clusters between various modes of transit transportation, including bus and rail, for example. These transfer clusters can be used as part of a traveler's proposed trip plan. .

Additional Sizing Assumptions:
SIZE=32;

navigable_map_traveler_update_cost

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains the cost of an update to the navigable map database used for on-line traveler guidance. The data flow consists of the following data item which is defined in its own DDE:

cost.

Additional Sizing Assumptions:
None

navigable_map_vehicle_update_cost

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains the cost of an update to the digitized map data used for on-line vehicle guidance. It consists of the following data item which is defined in its own DDE:

cost.

Additional Sizing Assumptions:
None

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. .
Additional Sizing Assumptions:
SIZE = 128;

need_date

This data flow contains the calendar date on which a specific activity or item is needed. .

Additional Sizing Assumptions:
SIZE=8;

need_time

This data flow contains the time at which a specific activity or item is needed. .

Additional Sizing Assumptions:
SIZE=8;

network_status_from_traffic_for_disaster

This data flow contains status of the traffic network during disaster situations. This may be used to send high-level status of the traffic network situation or to send details of current and forecasted traffic information, traffic incident information, environmental readings, and other road network status for use in developing disaster response and recovery plans. .

Additional Sizing Assumptions:
SIZE=1024;

network_status_from_traffic_for_evacuation

This data flow contains status of the traffic network for evacuation situations. This may be used to send high-level status of the traffic network situation or to send details of current and forecasted traffic information, traffic incident information, environmental readings, and other road network status for use in evacuation planning and execution. .

Additional Sizing Assumptions:
SIZE=2048;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
SIZE=list_size+LINKS{link_identity};

non_motorized_service_costs

This data flow contains details of the costs for a traveler's use of the non motorized services that may be suitable for use by a traveler as part of a proposed trip. It consists of the following data item each of which is defined in its own DDE:

cost.

Additional Sizing Assumptions:
SIZE=8{cost};

non_motorized_service_routes

This data flow contains details of the non-motorized service routes. These may be suitable for use by a traveler as part of a proposed trip. .

Additional Sizing Assumptions:
SIZE=32;

non_motorized_services_details

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

non_motorized_service_costs
+ non_motorized_service_routes.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=64;

o_d_matrix

This data flow contains an origin-destination (o-d) matrix that has been derived from the other traffic data, such as that obtained from video images of traffic. It will apply to the road (surface street) and highway network in the geographic area served by the function. The data will comprise a list of o-d pairs and the traffic flow between them, where the pairs will be identified by link identities. .

Additional Sizing Assumptions:
SIZE=((MAX_LINKS)/2)@2;

object_detection_sensor_control

This data flow provides control commands for object detection sensors located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure. etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity

+ object_sensor_control_data}.

Additional Sizing Assumptions:
None

object_detection_sensor_data

This data flow contains actual sensor readings collected from object detection sensors located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure. etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ object_sensor_data_collected}.

Additional Sizing Assumptions:
None

object_detection_sensor_data_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from object detection sensors located in areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ object_sensor_data_collected.

Additional Sizing Assumptions:
None

object_detection_sensor_status

This data flow is used within the Manage Emergency Services function to report the status of an object detection sensor located in secure areas typically away from travelers such as bridges, tunnels, roadway infrastructure, etc. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ object_sensor_fault_data}.

Additional Sizing Assumptions:
None

object_sensor_control_data

This data flow provides control commands for a single object detection sensor. These commands can be used to configure the sensor and to define processing parameters, including definition of thresholds for object detection. .

Additional Sizing Assumptions:
SIZE=32;

object_sensor_data_collected

This data flow represents the output of a single object detection sensor located in a secure area. .

Additional Sizing Assumptions:
SIZE=32;

object_sensor_fault_data

This data flow is used to report the status of an object detection sensor, providing the sensor configuration as well as a fault indication. .

Additional Sizing Assumptions:
SIZE=24;

object_sensor_processed_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing object detection sensor data. It is analyzed, correlated with other sensor data, and used to detect potential threats in secure areas. .

Additional Sizing Assumptions:
SIZE=256;

oem_disaster_response_plan

This data flow contains the resources that are available from other emergency management centers that may be used to respond to and recover from the current disaster. The data flow consists of the following data item which is defined in its own DDE:

disaster_response_oem_available_resources.

Additional Sizing Assumptions:
None

oem_emergency_status_report

This flow contains the status of other emergency management in supporting an emergency event. .

Additional Sizing Assumptions:
SIZE=48;

oem_evacuation_plan

This data flow contains the resources that are available from other emergency management centers that may be used to support the evacuation. The data flow consists of the following data item which is defined in its own DDE:

evacuation_oem_available_resources.

Additional Sizing Assumptions:
None

oem_preplanned_disaster_response_plan

This data flow contains the preplanned disaster response and recovery plan for other emergency management centers. These plans contain assets, schedules, etc. that the other emergency center has planned to utilize prior to the occurrence of a disaster. The data flow consists of the following data item which is defined in its own DDE:

planned_disaster_response_oem_available_resources.

Additional Sizing Assumptions:
None

oem_preplanned_evacuation_plan

This data flow contains the preplanned evacuation plans managed by other emergency management centers. These plans contain assets, schedules, etc. that the other emergency center has planned to utilize in support of an evacuation. The data flow consists of the following data item which is defined in its own DDE:

planned_evacuation_oem_available_resources.

Additional Sizing Assumptions:
None

on_board_intrusion_detection_device_control

This data flow contains control parameters for intrusion detection devices that have been installed on a maintenance and construction vehicle. These parameters may cover things such as device configuration or device reset. .

Additional Sizing Assumptions:
SIZE=8;

on_board_intrusion_detection_device_status

This data flow contains the status of an intrusion detection device that is located on a maintenance and construction vehicle. This status includes the configuration of the device and an indication of any device faults. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{device_identity
+ device_status
+ device_fault}.

Additional Sizing Assumptions:
None

on_board_work_zone_device_status

This data flow contains the status of all work zone devices monitored or controlled on-board a maintenance and construction vehicle. These devices include dynamic message signs, highway advisory, radios, closed circuit television cameras, intrusion detection devices, and intrusion alert devices. The data flow provides configuration data on the devices as well as device fault indication.

list_size
+ list_size{device_identity
+ device_fault
+ device_status}.

Additional Sizing Assumptions:
None

on_board_work_zone_device_status_for_operator

This data flow contains the status of all work zone devices monitored or controlled on-board a maintenance and construction vehicle. These devices include dynamic message signs, highway advisory radios, closed circuit television cameras, intrusion detection devices, and intrusion alert devices. The data flow provides configuration data on the devices as well as device fault indication.

list_size
+ list_size{device_identity
+ device_fault
+ device_status}.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=255;

operational_data_for_mcv

This data flow is used within the Manage Maintenance and Construction function and contains information about the maintenance and construction activity performed by the vehicle. Operational data includes the operational state of the maintenance equipment (e.g., blade up/down, spreader pattern, equipment configuration) and a record of the actual work performed. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

operator_control_of_on_board_work_zone_devices

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

Additional Sizing Assumptions:
SIZE = 8;

operator_log_for_incidents_data

This data store is used within the Manage Traffic function to log and store incidents data reported to the traffic operations personnel. The data flow contains the following data items each of which is defined in its own DDE:

traffic_operations_resource_response
+ traffic_operations_resource_request
+ ftop-resource_request
+ ttop-resource_response
+ m_and_c_resource_response_to_traffic
+ m_and_c_resource_request_from_traffic.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

origin

This data flow is used within the Provide Driver and Traveler Services function. It defines the origin point for a trip request or a route to be used by a traveler or a vehicle. In some instances it will be used as the origin for the use of a particular mode within a trip, e.g. the part of the route for the trip that is to be provided by walking, or ridesharing, or an multimodal service provider. It consists of the following data item which is defined in its own DDE:

route_point.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=10240;

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. .

Additional Sizing Assumptions:

SIZE=1024;

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. .

Additional Sizing Assumptions:
SIZE=1024;

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. .

Additional Sizing Assumptions:
SIZE=32;

other_control_data_for_highways

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

other_indicator_highway_requested_state.

Additional Sizing Assumptions:
None

other_control_data_for_roads

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

other_indicator_control_data_for_roads.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

other_current_incidents

This data flow is used within the Manage Traffic function and contains information about incidents which are currently taking place on links in areas served by adjacent traffic management centers (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}.

Additional Sizing Assumptions:
SIZE=tmc_identity+list_size+MAX_ADJ_CUR_INCIDENTS{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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

other_dms_data

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators through the use of dynamic message (DMS) and other types of signs on the roads. It consists of the following data items each of which is defined in its own DDE:

other_indicator_sign_control_data_for_roads
+ other_indicator_sign_control_data_for_hri.

Additional Sizing Assumptions:
None

other_dms_status

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

dms_status
+ roadway_information_incident_updates.

Additional Sizing Assumptions:
None

other_har_data

This data flow is used within the Manage Traffic function and contains the HAR data, both program and management, used to define the output of a Highway Advisory Radio (HAR) operating at the roadside on highways in the geographic and/or jurisdictional area(s) served by other traffic management functions. It consists of the following data items each of which is defined in its own DDE:

har_identity+
har_program+
har_management_data.

Additional Sizing Assumptions:
None

other_har_status

This data flow is used within the Manage Traffic function and contains the Highway Advisory Radio status for HARs, operating at the roadside on roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

har_status
+ har_identity
+ roadway_information_incident_updates.

Additional Sizing Assumptions:
None

other_indicator_control_data_for_roads

This data flow is used within the Manage Traffic function and contains the actual data from which instructions to the driver and traveler can be produced by indicators at the roadside on roads (surface streets) in the geographic area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

indicator_crossing_control_data_for_roads
+ indicator_junction_control_data
+ indicator_pedestrian_control_data.

Additional Sizing Assumptions:
None

other_indicator_highway_requested_state

This data flow is used within the Manage Traffic function and contains the actual state of operation of an indicator used to pass instructions to drivers and travelers on the highway network served by other traffic management functions. The form of indication shown to drivers will depend on the type of indicator. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_control_data_for_highways}.

Additional Sizing Assumptions:
SIZE=list_size+HIGHWAY_INDICATORS{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 travelers on freeways within the geographic and/or jurisdictional area(s) served by other traffic management functions. It is used for centralized monitoring the operation of the indicators and consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + indicator_response_state}.

Additional Sizing Assumptions:
SIZE=list_size+HIGHWAY_INDICATORS{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}.

Additional Sizing Assumptions:
SIZE=list_size+HIGHWAY_INDICATORS{indicator_data+indicator_type};

other_indicator_sign_control_data_for_hri

This data flow contains the actual data from which instructions to the driver and traveler can be produced by indicators, dynamic message (DMS), 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
    + hri_sign_control_data}.

Additional Sizing Assumptions:
SIZE=list_size+GRADE_CROSSINGS{crossing_id+hri_sign_control_data};

other_indicator_sign_control_data_for_roads

This data flow contains the actual data from which instructions to the driver and traveler can be produced by indicators at dynamic message (DMS) and other types of signs on the roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + indicator_sign_control_data}.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_SIGNS{indicator_identity+indicator_sign_control_data};

other_long_term_data

This data flow contains historic traffic data for links in the road (surface street) and highway network which are served by other traffic management centers (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 may be stored in time intervals for some period over a rolling window, after which it could be consolidated into a single smoothed or average set of data for normal weekday flows. The traffic management data is stored in periodic intervals daily for a long period of time as a record of the indicator state. This flow consists of the following items each of which is defined in its own DDE:

historical_stored_incident_data
+ historical_other_routes_use
+ o_d_matrix
+ historical_parking_lot_storage_data
+ historical_processed_data
+ historical_traffic_flow_state
+ historical_vehicle_smart_probe_stored_data
+ historical_wide_area_pollution_data
+ historical_traffic_management_storage_data.

Additional Sizing Assumptions:
None

other_modes_routes

This data store is used within the Provide Driver and Traveler Services function and contains details of all non-vehicle and non-transit routes which are currently in use by travelers. .

Additional Sizing Assumptions:
SIZE=32768;

other_parking_lot_dynamic_data

This data flow contains dynamic parking information received from other parking management systems in the region. This includes parking lot occupancy (e.g., number of spaces filled) and state (e.g., full, almost full). This data flow is made up of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_identity
    + parking_lot_state
    + parking_lot_occupancy}.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

other_parking_lot_static_data

This data flow contains static parking information that is received from other parking management systems in the region. This includes lot locations, features (e.g., ability to handle oversized vehicles), capacity, type, hours of operation, and rates. This data flow is made up of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_hours_of_operation
    + parking_lot_identity
    + parking_lot_price
    + parking_lot_spaces
    + parking_lot_entrance_location
    + parking_lot_type
    + parking_lot_features
    + parking_lot_fill_time}.

Additional Sizing Assumptions:
None

other_planned_events

This data flow is used within the Manage Traffic function and contains information about incidents which have been planned to take place on links in areas served by adjacent traffic management centers (TMC's). The data flow consists of the following data items each of which is defined in its own DDE:

tmc_identity
+ list_size
+ list_size{planned_events_data}.

Additional Sizing Assumptions:
SIZE=tmc_identity+list_size+MAX_ADJ_PLANNED_EVENTS{planned_events_data};

other_roadway_information_data

This data flow is used within the Manage Traffic function and contains Highway Advisory Radio (HAR) data and Dynamic Message Sign (DMS) data. It consists of the following data items each of which is defined in its own DDE:

other_har_data
+ other_dms_data.

Additional Sizing Assumptions:
None

other_roadway_information_status

This data flow is used within the Manage Traffic function and contains the status for dynamic message signs (DMS) and highway advisory radio (HAR) on the roadside in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

other_dms_status
+ other_har_status.

Additional Sizing Assumptions:
None

other_route

This data flow is used within the Provide Driver and Traveler Services function. It is a special form of 'route' which uses modes of transport other than vehicles or transit and contains the following items each of which is defined in its own DDE:

route_cost
+ route_segment_number{route_segment_end_point
+ route_segment_estimated_travel_time
+ route_segment_mode
+ route_segment_report_position_points
+ route_segment_start_point}.

Additional Sizing Assumptions:
SIZE=route_cost+NUM_SEGS{route_segment_end_point+route_segment_estimated_travel_time +route_segment_mode+route_segment_report_position_points+route_segment_start_point};

other_route_segment_data

This data flow is used within the Provide Driver and Traveler Services function. It contains route segment data obtained from a similar function in another ITS Center covering a separate geographic area. It consists of the following data item which is defined in its own DDE:

route_segment_details.

Additional Sizing Assumptions:
None

other_services_data

This data flow is used within the Manage Transit and Provide Driver and Traveler Services functions and contains details of the other (yellow pages) services requested by a traveler (including a user of the transit system). .

Additional Sizing Assumptions:
SIZE=256;

other_services_payment_confirm

This data flow is used within the Provide Electronic Payment Services and Provide Driver and Traveler Services functions. It is a flag which indicates that payment for a traveler's confirmed use of other (yellow pages) services has been completed successfully, or indicates that the payment transaction failed. .

Additional Sizing Assumptions:
SIZE=1;

other_services_roadside_request

This data flow is sent from the Manage Transit function to the Provide Electronic Payment Services function and contains the traveler's request from the roadside, i.e., a transit stop, for other (yellow pages) services. In order to fill

this request, the receiving process must receive the traveler's identity, and a list of services that he wishes to obtain. The data flow consists of the following data items each of which is defined in its own DDE :

traveler_identity
+ credit_identity
+ other_services_data.

Additional Sizing Assumptions:
None

other_services_roadside_response

This data flow is sent from the Provide Electronic Payment Services function to the Manage Transit function and contains the response to the traveler's request from the roadside, i.e., a transit stop, for other (yellow pages) services. It consists of the following data items each of which is defined in its own DDE :

traveler_identity
+ credit_identity
+ other_services_data.

Additional Sizing Assumptions:
None

other_services_vehicle_request

This data flow is sent from the Manage Transit function to the Provide Electronic Payment Services function and contains the traveler's request from a transit vehicle for other (yellow pages) services. In order to fill this request, the receiving process must receive the traveler's identity, and a list of services that he wishes to obtain. The data flow consists of the following data items each of which is defined in its own DDE :

traveler_identity
+ credit_identity
+ other_services_data.

Additional Sizing Assumptions:
None

other_services_vehicle_response

This data flow is sent from the Provide Electronic Payment Services function to the Manage Transit function and contains the response to the traveler's request from a transit vehicle for other (yellow pages) services. It consists of the following data items each of which is defined in its own DDE :

traveler_identity
+ credit_identity
+ other_services_data.

Additional Sizing Assumptions:
None

other_status_for_highways

This data flow is used within the Manage Traffic function and contains the status for indicator data operating on freeways in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

other_indicator_input_data_from_highways.

Additional Sizing Assumptions:
None

other_status_for_roads

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

other_indicator_input_state_for_roads.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

other_TMC_data_request

This data flow is exchanged with the other traffic centers (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.
.

Additional Sizing Assumptions:
SIZE=2;

other_TMC_emergency_data

This data flow is used within the Manage Traffic function and contains the portion of a strategy that gives preemption to emergency vehicles that relates to roads (surface streets) and highways that are outside the area served by the local TMC. This data has been received from other TMC's so the local TMC can implement the requested preemption measures to give the emergency vehicles preemption throughout their route. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_traffic_control_request
+ selected_emergency_vehicle_strategy.

Additional Sizing Assumptions:
None

other_TMC_incidents_request

This data flow is exchanged with the other traffic centers (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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

other_toll_admin_data

This data store contains toll pricing data and charge reconciliation data received from the Other Toll Administration terminator. It consists of the following items each of which is defined in its own DDE:

fota-toll_pricing_data
+ fota-toll_charges_reconciliation_data.

Additional Sizing Assumptions:
None

other_toll_data_input

This data flow contains toll pricing data and charge reconciliation data received from another toll administration function. It consists of the following items each of which is defined in its own DDE:

other_toll_pricing_data
+ toll_reconciliation_inputs.

Additional Sizing Assumptions:
None

other_toll_data_output

This data flow contains toll pricing data and charge reconciliation data to be passed onto another toll administration function. It consists of the following items each of which is defined in its own DDE:

toll_prices_for_other_toll
+ toll_reconciliation_outputs.

Additional Sizing Assumptions:

None

other_toll_pricing_data

This data includes toll prices received from another toll administration function. .

Additional Sizing Assumptions:
SIZE=200;

other_traffic_center_data

This store is used within the Manage Traffic function and contains data that has been obtained from other Traffic Management Centers (TMC's) that serve different geographic or jurisdictional areas outside that served by the local TMC. The data flow consists of the following items of data each of which is defined in its own DDE:

tmc_list
+ 1{other_long_term_data}list_size.

Additional Sizing Assumptions:
SIZE=tmc_list+ADJACENT_TMS{other_long_term_data};

other_transit_management_service_data

This data flow is used within the Manage Transit function and contains the raw transit schedule and route data received from an adjacent transit operation. The data will be used in future service calculations by the local operation to enable there to be coordination between the two services for the benefit of the traveler. .

Additional Sizing Assumptions:
SIZE=1024000;

override_lane_hold

This data flow is used within the Provide Vehicle Control and Monitoring function and indicates that lane holding must be suspended while the vehicle changes lanes. This lane change is due to the driver requesting that the vehicle change lanes. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=32;

parameters_data_for_broadcast_messages

This data flow is used within the Provide Driver and Traveler Services function and contains the contents of the store of parameters used to filter traffic and transit information for wide area broadcasting. The data is being sent from a process that manages the store following its update with new data by the ISP operator. The data flow consists of the following data item which is defined in its own DDE:

broadcast_parameters_data.

Additional Sizing Assumptions:
None

paratransit_arrival_time

This data flow is used within the Manage Transit function and contains the time at which the requested paratransit service will get the traveler to the requested destination. The location of the destination is provided in a separate data flow. The data flow consists of the following data item which is defined in its own DDE:

time.

Additional Sizing Assumptions:
None

paratransit_availability_time

This data flow is used within the Manage Transit function and contains a time window of availability of the requested paratransit service. If the traveler does not confirm the use of the service within this time frame, the details will no longer be valid, and the traveler will have to re-request the service. This is to allow for the fluctuating nature of demand for paratransit services and to enable the best possible service to be provided at any time. .

Additional Sizing Assumptions:
SIZE=4;

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
+ transit_vehicle_location_data.

Additional Sizing Assumptions:
None

paratransit_constraints

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

constraint_on_acceptable_travel_time
+ constraint_on_number_of_mode_changes
+ constraint_on_number_of_transfers

+ constraint_on_eta_change
+ constraint_on_special_needs
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type.

Additional Sizing Assumptions:
None

paratransit_destination

This data flow is used within the Manage Transit function and contains destination of the requested paratransit service, which may not be the traveler's final destination, since the remainder of the trip may be completed by other means, e.g. regular public transit. .

Additional Sizing Assumptions:
SIZE=3;

paratransit_personal_schedule

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

paratransit_service_details
+ paratransit_service_cost
+ traveler_identity.

Additional Sizing Assumptions:
None

paratransit_pickup_location

This data flow is used within the Manage Transit function and contains the location at which the requested paratransit service will pick up the traveler. The time at which the traveler will be picked up is contained in a separate data flow. The data flow consists of the following data item which is defined in its own DDE:

location_identity.

Additional Sizing Assumptions:
None

paratransit_pickup_time

This data flow is used within the Manage Transit function and contains the time at which the requested paratransit service will pick up the traveler. The location of the pick-up point is provided in a separate data flow. .

Additional Sizing Assumptions:
SIZE=4;

paratransit_request

This data flow is used within the Provide Driver and Traveler Services function as a means of specifying the parameters needed for a paratransit based trip (or paratransit portion of a multi-modal trip) to be generated. It contains the following data items each of which is defined in its own DDE:

origin
+ destination

+ departure_time
+ desired_arrival_time.

Additional Sizing Assumptions:
None

paratransit_requested_services

This data flow is used within the Manage transit function and contains details of the traveler's request for paratransit services. It consists of the following data items each of which is defined in its own DDE:

paratransit_personal_schedule
+ traveler_identity.

Additional Sizing Assumptions:
None

paratransit_route_confirm

This data flow is used within the Provide Driver and Traveler Services function and is the confirmation that the response to a previous request from a travelers seeking on-line guidance to be given access to paratransit services is acceptable to the traveler.

paratransit_service_details
+ traveler_identity.

Additional Sizing Assumptions:
None

paratransit_route_request

This data flow is used within the Provide Driver and Traveler Services function to enable travelers using on-line guidance to be given access to paratransit services. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ trip_request.

Additional Sizing Assumptions:
None

paratransit_route_response

This data flow is used within the Provide Driver and Traveler Services function and is the response to the request from a travelers using on-line guidance to be given access to paratransit services. It consists of the following data items each of which is defined in its own DDE:

paratransit_service_details
+ traveler_identity.

Additional Sizing Assumptions:
None

paratransit_schedule

This data flow is used within the Manage Transit function and contains details of a paratransit service that has been generated in response to a previously submitted traveler request. It consists of the following data items each of which is defined in its own DDE:

paratransit_service_details
+ transit_stop_locations
+ transit_schedules
+ transit_route.

Additional Sizing Assumptions:
None

paratransit_service_confirmation

This data flow is sent by the Provide Driver and Traveler Services function to the Manage Transit function to confirm that the traveler wants to use the previously identified paratransit service. It contains the following data items each of which is defined in its own DDE:

paratransit_service_identity
+ transit_confirmation_flag
+ traveler_identity.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

paratransit_service_data

This data store is used within the Manage Transit function to hold data about paratransit services that have been requested but not confirmed by travelers. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ paratransit_personal_schedule.

Additional Sizing Assumptions:
None

paratransit_service_data_for_archive

This data flow is used within the Manage Transit function to send data about paratransit services that have been requested but not confirmed by travelers. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ paratransit_personal_schedule.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

paratransit_service_identity

This data flow provides a unique identity number for a requested paratransit service. .

Additional Sizing Assumptions:
SIZE=3;

paratransit_service_output

This data flow is used within the Manage Transit function to hold data about paratransit services for output to the store used as the interface to the regular transit route and schedule generation processes. It contains the following data item which is defined in its own DDE:

paratransit_service_details.

Additional Sizing Assumptions:
None

paratransit_service_status

This data flow is sent from the transit vehicle operator to the Manage Transit function. It contains status of demand responsive or flexible-route services as and when they are provided to travelers. This data also includes input from the transit vehicle operator concerning paratransit schedules and passenger loading. .

Additional Sizing Assumptions:
SIZE=1024;

paratransit_service_stored_data

This data flow is used within the Manage Transit function. It contains details of the one hundred most used demand responsive transit (paratransit) services and is for use by the processes that generate regular transit service routes and schedules. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{paratransit_service_details}.

Additional Sizing Assumptions:
SIZE=list_size+100{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 transit services. It contains the following data items each of which is defined in its own DDE:

paratransit_service_details
+ transit_vehicle_identity
+ transit_stop_locations
+ transit_schedules
+ transit_route
+ traveler_identity.

Additional Sizing Assumptions:
None

paratransit_services_for_transit_vehicle_operators

This data flow is used within the Manage Transit function to provide data about a confirmed paratransit service to a transit vehicle operator. It contains the following data items each of which is defined in its own DDE:

transit_schedules
+ transit_route
+ transit_stop_locations.

Additional Sizing Assumptions:
None

paratransit_transit_vehicle_availability

This data flow is used within the Manage Transit function and contains the current availability of a transit vehicle for paratransit services. This availability has been computed from processing the inputs from on-board sensors within the transit vehicle. .

Additional Sizing Assumptions:
SIZE=1;

paratransit_transit_vehicle_operator_instructions

This data flow is used within the Manage Transit function and contains the instructions for the transit vehicle operator to follow in order that a paratransit service can be executed. The instructions will contain such things as pick-up points, traveler identities, drop off points, etc. The operator can obtain actual route guidance through the on-line vehicle guidance facility available from the Provide Driver and Traveler Services function. .

Additional Sizing Assumptions:
SIZE=128;

paratransit_trip_request

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Transit function to action a trip request using the paratransit operation. It contains the following data items each of which is defined in its own DDE:

traveler_identity
+ origin
+ destination
+ departure_time
+ desired_arrival_time
+ preferences

+ paratransit_constraints.

Additional Sizing Assumptions:
None

paratransit_vehicle_location

This data flow is used within the Manage Transit function to provide the exact location of a vehicle being used for demand responsive transit operations also known as paratransit. It contains the transit vehicle location plus its identity. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

parking_archive_data

This data flow is sent from the Manage Traffic function to the Manage Archive Data function. It contains details of parking data such as parking availability, occupancy, and pricing. This data flow made up of the following items each of which is defined in its own DDE:

parking_archive_catalog
+ parking_data_for_archive.

Additional Sizing Assumptions:
None

parking_archive_data_request

This data flow from the Manage Archive Data function contains the request for the data held by the Manage Traffic function. The request for data may include the description of the data required or a timeframe over which the requested information may be available. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

parking_charge_response_for_archive

This data flow is sent from the Provide Electronic Payment Services function to the Manage Traffic function. It contains the response to a previous request for the current parking lot charges to be stored in the data archive. It will store data about the prices charged for parking lot spaces, by time of day, day of week and vehicle type. This data flow is made up of the following items each of which is defined in its own DDE:

list_size
+ parking_lot_identity
+ 1{parking_lot_price
  + parking_lot_charge_application_time
  + vehicle_type_for_charges}list_size
  + parking_lot_availability.

Additional Sizing Assumptions:
SIZE=parking_lot_identity+PARKING_LOTS{parking_lot_price+parking_lot_charge_application_time
  +vehicle_type_for_charges};

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

parking_information_for_dissemination

This data flow contains dynamic parking information that would be used to generate DMS and HAR messages. This includes parking lot occupancy (e.g. number of spaces filled), state (e.g. full, almost full) and detailed arrival and departure information. This data flow is made up of the following data items, each of which is defined in its own DDE:

parking_lot_state
+ parking_lot_identity
+ parking_lot_arrival_details
+ parking_lot_departure_details
+ parking_lot_occupancy.

Additional Sizing Assumptions:
None

parking_lot_arrival_details

This data flow contains the number of vehicles arriving at a parking lot over some recent time interval. .

Additional Sizing Assumptions:
SIZE=2400;

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 traveler making a parking lot reservation. The data flow consists of the following items each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_spaces
+ traveler_identity
+ parking_lot_hours_of_operation
+ handicap_access_information.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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). .

Additional Sizing Assumptions:
SIZE=2;

parking_lot_capacity_update

This data flow is used within the Provide Electronic Payments function and contains an update to the current capacity of a parking lot managed by a particular Parking Service Provider. It consists of the following data items each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_spaces.

Additional Sizing Assumptions:
None

parking_lot_capacity_update_confirm

This data flow is used within the Provide Electronic Payments function and contains the result of an update to the current capacity of a parking lot managed by a particular Parking Service Provider. It consists of the data items shown below each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_spaces.

Additional Sizing Assumptions:
None

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
+ vehicle_identity.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=2;

parking_lot_charge_change_request

This data flow is sent from the Manage Traffic function to the Provide Electronic Payment Services function and contains a request for a change to the current parking lot charging structure that will help to influence a change in modal split of journeys currently being undertaken by travelers of all types, i.e. including drivers and users of the transit system, by encouraging then to use certain parking lots, e.g. those near park and ride sites on the edge of an urban area. It consists of the following data items each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_price
+ parking_lot_charge_application_time
+ vehicle_type_for_charges.

Additional Sizing Assumptions:
None

parking_lot_charge_change_response

This data flow is sent from the Provide Electronic Payment Services function to the Manage Traffic function. It contains the response to a previous request for the current parking lot charges to be changed to help produce a change in the current modal split of trips being undertaken by all types of travelers. .

Additional Sizing Assumptions:
SIZE=1;

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. 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.

Additional Sizing Assumptions:
None

parking_lot_charge_direct_details

This data flow is contains the prices being charged by each parking lot for each of its spaces, together with the time and date for which they apply. It consists of the following data items each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_price
+ parking_lot_charge_application_time
+ vehicle_type_for_charges.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=1;

parking_lot_cost

This data flow is used within the Provide Electronic Payment Services function. It defines the cost of particular vehicle using a space in a parking lot for a particular time period. The data flow consists of the following data item which is defined in its own DDE:

cost.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

parking_lot_data_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about the 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.

Additional Sizing Assumptions:
None

parking_lot_data_for_archive_attributes

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data attribute information to the data archive about the 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.

Additional Sizing Assumptions:
None

parking_lot_data_request

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains a request for data about the number of spaces that are available in a particular parking lot at the specified date and time. This data is requested as part of the process of putting together a proposed trip in response to a traveler's trip request. This data flow contains the following items each of which is defined in its own DDE:

date
+ parking_lot_identity
+ time
+ traveler_identity.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=2;

parking_lot_departure_details

This data flow contains the number of vehicles departing a parking lot over some recent time interval. .

Additional Sizing Assumptions:
SIZE=2400;

parking_lot_dms_allocation

This data flow is used within the Manage Traffic function and contains the identity(ies) of dynamic message signs that are allocated to parking lots to show the state of the parking lot, and (possibly) give alternate parking information. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{unit_number}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_PARKING_DMS{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. .

Additional Sizing Assumptions:
SIZE=16;

parking_lot_dynamic_data_operator_input

This data flow is used within the Manage Transit function to provide data from the parking lot operator. This data may take the form of the current parking lot occupancy or its state, e.g. full, spaces, closed, etc. .

Additional Sizing Assumptions:
SIZE=4;

parking_lot_dynamic_data_operator_update

This data flow contains dynamic parking information for both locally managed lots and other lots in the region that are sharing dynamic parking information. This information will be displayed to parking lot operators as they manage the facilities. This includes parking lot occupancy (e.g., number of spaces filled), state (e.g., full, almost full), detailed arrival information, and detailed departure information. This data flow is made up of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_identity
    + parking_lot_state
    + parking_lot_occupancy
    + parking_lot_arrival_details
    + parking_lot_departure_details}.

Additional Sizing Assumptions:
None

parking_lot_dynamic_information_request_by_isp

This data flow contains a request from a traveler information service for dynamic parking lot information for some set of parking lots. This data flow is made up of the following data items, each of which are defined in its own DDE:

list_size
+ list_size{parking_lot_identity}.

Additional Sizing Assumptions:
None

parking_lot_dynamic_information_request_by_traffic

This data flow contains a request from traffic management for dynamic parking lot information for some set of parking lots. This data flow is made up of the following data items, each of which are defined in its own DDE:

list_size
+ list_size{parking_lot_identity}.

Additional Sizing Assumptions:
None

parking_lot_dynamic_information_request_by_transit

This data flow contains a request from transit management for dynamic parking lot information for some set of parking lots. This data flow is made up of the following data items, each of which are defined in its own DDE:

list_size
+ list_size{parking_lot_identity}.

Additional Sizing Assumptions:

None

parking_lot_entrance_location

This data flow contains the location of each entrance of a single parking lot. The location might be stored as the route segment identity on which the entrance is located, it might be stored as a street address or it might be stored as a precise geographical location. This data flow contains the following data item which is defined in its own DDE:

location_identity.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

parking_lot_features

This data flow contains data on the features of a parking lot, which includes height and width restrictions, number of handicap spaces, number of oversized spaces, etc. .

Additional Sizing Assumptions:
SIZE=32;

parking_lot_fill_time

This data flow contains the time at which a parking facility usually (on weekdays) reaches a point where spaces available equals 0. .

Additional Sizing Assumptions:
SIZE=32;

parking_lot_hours_of_operation

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function and contains data on the hours of operation of parking lots. This data is used in transactions requiring electronic payment of parking lot services, as well as for a traveler making a parking lot reservation. .

Additional Sizing Assumptions:
SIZE=64;

parking_lot_identity

This data flow is used within the Provide Electronic Payment Services and Manage Traffic function. It contains the identity of an individual parking lot, including contact information, so that its charges can be defined and a control strategy applied to its use. The data flow consists of the following data items each of which is defined in its own DDE:

unit_number
+ location_identity.

Additional Sizing Assumptions:

None

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. .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
SIZE=parking_lot_list+PARKING_LOTS{vehicle_count+vehicle_queue_length};

parking_lot_list

This data flow is used within the Manage Traffic function and contains a list of parking lots to which a particular strategy is to be applied. The strategy will either promote or discourage the use of the parking lots to generally improve traffic flow conditions in the geographic area controlled by the TMC. The data flow consists of the following data items each of which is defined by its own DDE:

1{parking_lot_identity}list_size.

Additional Sizing Assumptions:
SIZE=list_size+PARKING_LOTS{parking_lot_identity};

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. .

Additional Sizing Assumptions:
SIZE=2;

parking_lot_payment_confirmation

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that the previous request for the cost of the current parking lot charge to be deducted from the credit currently stored by the traveler card / payment instrument has been completed successfully. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

parking_lot_payment_debited

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that the cost of the current parking lot charge will be deducted by the financial institution from the credit identity previously provided by the traveler card / payment instrument. It is only sent when a credit identity has been previously received from the traveler card / payment instrument. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

parking_lot_payment_request

This data flow is used within the Provide Electronic Payment Services function and contains the request for the cost of the current parking lot charge to be deducted from the credit currently stored by the traveler card / payment instrument. It is only sent when a value of stored credit has been previously received from the traveler card / payment instrument. The data flow consists of the following data item which is defined in its own DDE:

parking_lot_cost.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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}.

Additional Sizing Assumptions:
SIZE=list_size+PARKING_LOTS{parking_lot_price_data};

parking_lot_prices

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

list_size
+ parking_lot_identity
+ 1{parking_lot_price
  + parking_lot_charge_application_time
  + vehicle_type_for_charges}list_size.

Additional Sizing Assumptions:
SIZE=parking_lot_identity+PARKING_LOTS{parking_lot_price+parking_lot_charge_application_time
  +vehicle_type_for_charges};

parking_lot_reservation_confirm

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function. It contains the confirmation that a previously requested reservation of a space at a parking lot has been confirmed and can be included in a traveler's confirmed trip plan. This data flow consists of the following items each of which is defined in its own DDE:

parking_lot_identity
+ reservation_status
+ traveler_identity.

Additional Sizing Assumptions:
None

parking_lot_reservation_request

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains a request for an advance reservation to be made at a parking lot. This reservation is the result of a traveler confirming a proposed trip. This data flow contains the following items each of which is defined in its own DDE:

date

+ parking_lot_identity
+ time
+ traveler_identity.

Additional Sizing Assumptions:
None

parking_lot_sensor_allocation

This data flow is used within the Manage Traffic function and contains the identity(ies) of the traffic sensors that are used to determine the number of spaces in the parking lot that are currently occupied. There are two types of sensor, those measuring input flow (vehicles entering the lot) and those measuring output flow (vehicles leaving the lot). The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{unit_number + parking_lot_sensor_type}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_PARKING_SENSORS{unit_number+parking_lot_sensor_type};

parking_lot_sensor_type

This data flow is used within the Manage Traffic function and contains a character that indicates the type of parking lot lane to which a traffic sensor has been applied to count the number of vehicles that pass. The following two types are provided:

N - for sensors on entry lanes,
X - for sensors on exit lanes. .

Additional Sizing Assumptions:
SIZE=1;

parking_lot_spaces

This data flow is used within the Provide Driver and Traveler Services function and contains the number of spaces available in a parking lot. This may be either currently or at some point in the future depending on accompanying data. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

parking_lot_state_thresholds

This data flow is used within the Manage Traffic function and contains the thresholds at which the parking lot states will change, e.g. from 'spaces' to 'almost full', etc. There are two sets of thresholds, one set for use when the parking lot occupancy is increasing and the other set for use when the occupancy is decreasing. The data flow consists of the following data items each of which is defined in its own DDE:

parking_lot_increasing_threshold
+ parking_lot_decreasing_threshold.

Additional Sizing Assumptions:
SIZE=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_dms_allocation}.

Additional Sizing Assumptions:
None

parking_lot_static_data_for_coordination

This data flow contains static parking information that is shared with other parking management systems in the region. This includes lot locations, features (e.g., ability to handle oversized vehicles), capacity, type, hours of operation, and rates. This data flow is made up of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_hours_of_operation
    + parking_lot_identity
    + parking_lot_price
    + parking_lot_spaces
    + parking_lot_entrance_location
    + parking_lot_type
    + parking_lot_features
    + parking_lot_fill_time}.

Additional Sizing Assumptions:
None

parking_lot_static_data_operator_input

This data flow is used within the Manage Transit function to provide data from the parking lot operator. This data may take the form of the current parking lot occupancy or its state, e.g. full, spaces, closed, etc. .

Additional Sizing Assumptions:
SIZE=4;

parking_lot_static_data_operator_update

This data flow contains static parking information that is to be displayed to a parking lot operator. This includes lot locations, features (e.g., ability to handle oversized vehicles), capacity, type, hours of operation, and rates. This data flow is made up of the following data items each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_hours_of_operation
    + parking_lot_identity
    + parking_lot_price
    + parking_lot_spaces
    + parking_lot_entrance_location
    + parking_lot_type
    + parking_lot_features

+ parking_lot_fill_time}.

Additional Sizing Assumptions:
None

parking_lot_static_information_request_by_isp

This data flow contains a request from a traveler information service for static parking lot information for some set of parking lots. This data flow is made up of the following data items, each of which are defined in its own DDE:

list_size
+ list_size{parking_lot_identity}.

Additional Sizing Assumptions:
None

parking_lot_static_information_request_by_traffic

This data flow contains a request from traffic management for static parking lot information for some set of parking lots. This data flow is made up of the following data items, each of which are defined in its own DDE:

list_size
+ list_size{parking_lot_identity}.

Additional Sizing Assumptions:
None

parking_lot_static_information_request_by_transit

This data flow contains a request from transit management for static parking lot information for some set of parking lots. This data flow is made up of the following data items, each of which are defined in its own DDE:

list_size
+ list_size{parking_lot_identity}.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+PARKING_LOTS{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 traveler card / payment instrument being used by the driver at a parking lot. This may be either a

credit identity, or the value of the credit currently stored by the traveler card / payment instrument, to which parking lot charges may be charged. The data flow consists of the following items each of which is defined in its own DDE:

credit_identity
+ date
+ parking_lot_entry_lane_number
+ stored_credit
+ time.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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

parking_lot_tag_data.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

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. This update will have loaded the time at which the vehicle entered the parking lot and is for use in charging for the vehicle's use of the lot. The data flow consists of the following data item which is defined in its own DDE:

parking_lot_tag_data.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=8;

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}.

Additional Sizing Assumptions:
SIZE=list_size+1000000{advanced_charge_transactions+current_charge_transactions};

parking_lot_type

This data flow contains an indication of the physical characteristics of a parking facility, indicating whether the lot is an open lot or closed garage. The data flow also contains the type of parking provided (e.g. permit, contract, fee or paid). .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=1024000;

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.

Additional Sizing Assumptions:
None

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). .

Additional Sizing Assumptions:
SIZE=64;

payment_request

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains requests for payments to be made by travelers or requests for price information. It consists of the following data items each of which is defined in its own DDE:

driver_advanced_payment_for_map
+ driver_map_update_payment_request
+ other_services_vehicle_request
+ parking_lot_data_request
+ parking_lot_reservation_request
+ request_prices
+ rideshare_payment_request
+ traveler_map_update_payment_request
+ traveler_other_services_payment_request
+ traveler_payment_request
+ traveler_personal_data_update
+ traveler_personal_display_update_payment_request
+ traveler_personal_map_update_cost
+ traveler_roadside_data_update
+ yellow_pages_service_provider_registration_request.

Additional Sizing Assumptions:

None

payment_result

This data flow is sent by the Provide Electronic Payment Services function to the Provide Driver and Traveler Service function and contains responses to requests for payment by travelers, prices, probe data from vehicles paying tolls, or responses from parking lots. The data flow consists of the following data items each of which is defined in its own DDE:

driver_credit_identity
+ driver_map_update_payment_response
+ other_services_vehicle_response
+ parking_lot_availability
+ parking_lot_reservation_confirm
+ prices
+ rideshare_payment_confirmation
+ traveler_map_update_payment_response
+ traveler_payment_response
+ traveler_personal_display_update_payment_response
+ traveler_other_services_payment_result
+ traveler_personal_data
+ traveler_roadside_data
+ vehicle_toll_probe_data
+ yellow_pages_service_provider_registration_response
+ traveler_info_payments_transactions.

Additional Sizing Assumptions:
None

payment_to_em

This data is used by the Manage Transit and Provide Electronic Payment Services functions to send data about a violator of the toll, parking lot or fare collection processes to the Manage Emergency Services function. It consists of the following data items each of which is defined it its own DDE:

fare_violation_information
+ parking_lot_violation_information
+ toll_violation_information
+ alert_notification_status_from_tolls
+ evacuation_toll_change_response.

Additional Sizing Assumptions:
None

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 traveler 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
+ traveler_payments_transactions
+ traveler_map_update_payments_transactions
+ traveler_trip_payments_transactions
+ yellow_pages_provider_payments_transactions.

Additional Sizing Assumptions:
None

pedestrian_adaptive_data

This data flow is used within the Manage Traffic function and contains data about adaptive control data used by indicators that are pedestrian controllers to enable them to control traffic. The format of the data will depend upon the type of adaptive control being used. .

Additional Sizing Assumptions:
SIZE=20;

pedestrian_control_commands

This data flow is the actual control commands that make the pedestrian controller change the traffic 'stop/go' and pedestrian 'walk/don't walk' outputs shown by its phases. The actual format of the control commands will depend on national standards being developed for controller fixed time plans, e.g. NTCIP. However the data flow can handle all projected type of controller and control commands formats. .

Additional Sizing Assumptions:
SIZE=16;

pedestrian_cycle_time

This data flow contains data about the time taken to complete all the control commands in an pedestrian fixed time plan once only. .

Additional Sizing Assumptions:
SIZE=1;

pedestrian_data

This data flow is used within the Manage Traffic function and contains a list of indicators for which pedestrian demands have been found to be present. These indicators are in fact traffic signal controllers that are capable of servicing the pedestrian demand and enabling pedestrians to cross the road or highway is a safe and coordinated manner. This data is used to determine the traffic control strategy for signalized traffic intersections. The data flow consists of the following items each of which is defined in its own DDE:

indicator_list
+ 1{pedestrian_demand}list_size.

Additional Sizing Assumptions:
SIZE=indicator_list+PEDESTRIAN_SIGNAL_CONTROLLERS{pedestrian_demand};

pedestrian_demand

This data flow is used within the Manage Traffic function. It contains processed pedestrian surveillance data obtained from sensors within the road (surface street) and highway network served by the TMC. The data is used to determine the traffic control strategy for signalized traffic intersections. .

Additional Sizing Assumptions:
SIZE=16;

pedestrian_equipment_data

This data flow provides information about each pedestrian intersection, i.e. an interface between pedestrians and road vehicles that enables one or the other to have controlled right of way. The information is required so that its

control using adaptive, fixed time or local techniques can be properly implemented when needed. Note that the indicator type data in data that forms part of the indicator identity will be set to that for pedestrian controllers. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity + pedestrian_phase_data}.

Additional Sizing Assumptions:
SIZE=list_size+PED_CONTROLLERS{indicator_identity+pedestrian_phase_data};

pedestrian_fixed_time_data

This data flow contains data about fixed time control data used by indicators that are pedestrian controllers to enable them to control traffic. The data will be made up of the following items:

pedestrian_cycle_time
+ pedestrian_offset_time
+ pedestrian_control_commands.

Additional Sizing Assumptions:
None

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. .
Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=5;

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.

Additional Sizing Assumptions:
SIZE=node_list+LINKS{pedestrian_demand};

perishability_date

This data flow is the date/time stamp of when the data being described will be removed from the archive, either the local source agencies storage or the permanent archive store. This data flow consists of the following items each of which is defined in its own DDE:

date
+ time.

Additional Sizing Assumptions:
None

permit_coordination

This data flow is used within the Manage Traffic function and contains information used in the coordination of permits for special travel requirements which involve different agencies and jurisdictions. This information provides the Manage Traffic function with schedule and route information to prepare special travel and traffic controls for the transport of non-typical loads or roadway activities that require permits. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time
+ permit_type
+ permit_route_plan
+ permit_traffic_controls.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE = 3;

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. .

Additional Sizing Assumptions:
SIZE=32;

personal_traveler_information

This data flow is used within the Provide Driver and Traveler Services function and contains the general traveler information to be displayed to a traveler from a personal device. The data flow consists of the following data items each of which is defined in its own DDE:

traffic_data_for_broadcast_to_personal_devices
+ transit_services_for_distribution_to_personal_devices
+ transit_deviations_for_broadcast_to_personal_devices
+ transit_vehicle_arrival_time
+ evacuation_information_for_personal_access
+ transportation_system_status_for_personal_devices
+ wide_area_alert_information_for_personal_devices.

Additional Sizing Assumptions:
None

planned_disaster_response_m_and_c_available_resources

This data flow contains the resources maintenance and construction has planned to use in the event of a disaster. The data flow consists of the following data items which are defined in their own DDE:

m_and_c_resources.

Additional Sizing Assumptions:
None

planned_disaster_response_m_and_c_work_plan

This data flow contains the work plan and schedule maintenance and construction has planned to use in the event of a disaster. It consists of the following data items each of which is defined in its own DDE:

m_and_c_work_plans.

Additional Sizing Assumptions:
None

planned_disaster_response_oem_available_resources

This data flow contains the resources other emergency management centers plan to use in the event of a disaster. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_vehicle_availability.

Additional Sizing Assumptions:
SIZE= 0;

planned_disaster_response_rail_available_resources

This data flow contains the resources rail has planned to use in the event of a disaster. The data flow consists of the following data items each of which is defined in its own DDE:

rail_available_resources.

Additional Sizing Assumptions:
SIZE= 0;

planned_disaster_response_rail_schedule

This data flow contains the schedule rail has planned to use in the event of a disaster. It consists of the following data items each of which is defined in its own DDE:

fro-train_schedules.

Additional Sizing Assumptions:
None

planned_disaster_response_traffic_available_resources

This data flow contains the resources traffic management has planned to use in the event of a disaster. The data flow consists of the following data items which are defined in their own DDE:

traffic_resources_available.

Additional Sizing Assumptions:
None

planned_disaster_response_transit_available_resources

This data flow contains the resources transit has planned to use in the event of a disaster. The data flow consists of the following data items which are defined in their own DDE:

transit_resources_available.

Additional Sizing Assumptions:
None

planned_disaster_response_transit_fares

This data flow contains the fares transit has planned to use in the event of a disaster. The data flow consists of the following data items which are defined in their own DDE:

transit_fare.

Additional Sizing Assumptions:
None

planned_disaster_response_transit_routes

This data flow contains the routes transit has planned to use in the event of a disaster. It consists of the following data items each of which is defined in its own DDE:

transit_route.

Additional Sizing Assumptions:
None

planned_disaster_response_transit_schedule

This data flow contains the schedule transit has planned to use in the event of a disaster. The data flow consists of the following data items which are defined in their own DDE:

transit_schedule_data.

Additional Sizing Assumptions:
None

planned_evacuation_m_and_c_available_resources

This data flow contains the resources maintenance and construction has planned to use in support of an evacuation. The data flow consists of the following data items which are defined in their own DDE:

m_and_c_resources.

Additional Sizing Assumptions:
None

planned_evacuation_m_and_c_work_plan

This data flow contains the work plan maintenance and construction has planned to use in support of an evacuation. It consists of the following data items each of which is defined in its own DDE:

m_and_c_work_plans.

Additional Sizing Assumptions:
None

planned_evacuation_oem_available_resources

This data flow contains the resources other emergency management centers plan to use in support of an evacuation. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_vehicle_availability.

Additional Sizing Assumptions:
SIZE= 0;

planned_evacuation_rail_available_resources

This data flow contains the resources rail has planned to use to support an evacuation. The data flow consists of the following data items each of which is defined in its own DDE:

rail_available_resources.

Additional Sizing Assumptions:
SIZE= 0;

planned_evacuation_rail_schedule

This data flow contains the schedule rail has planned to use to support an evacuation. It consists of the following data items each of which is defined in its own DDE:

fro-train_schedules.

Additional Sizing Assumptions:
None

planned_evacuation_traffic_available_resources

This data flow contains the resources traffic management has planned to use in support of an evacuation. The data flow consists of the following data items which are defined in their own DDE:

traffic_resources_available.

Additional Sizing Assumptions:
None

planned_evacuation_transit_available_resources

This data flow contains the resources transit has planned to use in support of an evacuation. The data flow consists of the following data items which are defined in their own DDE:

transit_resources_available.

Additional Sizing Assumptions:
None

planned_evacuation_transit_fares

This data flow contains the fares transit has planned to use in support of an evacuation. The data flow consists of the following data items which are defined in their own DDE:

transit_fare.

Additional Sizing Assumptions:
None

planned_evacuation_transit_routes

This data flow contains the routes transit has planned to use in support of an evacuation. It consists of the following data items each of which is defined in its own DDE:

transit_route.

Additional Sizing Assumptions:
None

planned_evacuation_transit_schedule

This data flow contains the schedule transit has planned to use in support of an evacuation. The data flow consists of the following data items which are defined in their own DDE:

transit_schedule_data.

Additional Sizing Assumptions:
None

planned_event_data

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

list_size
+ list_size{planned_event_details}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_PLANNED_EVENTS{planned_event_details};

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_PREDICTED_INCIDENTS{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}
+ crossing_closure_schedule.

Additional Sizing Assumptions:
SIZE=list_size+MAX_PLANNED_EVENTS{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.

Additional Sizing Assumptions:
None

planned_events_for_advisories

This data flow is used within the Provide Driver and Traveler Services function and contains data about planned events for use in advisory messages that are requested by and output to drivers and travelers in vehicles (including users of the transit system). 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}.

Additional Sizing Assumptions:
SIZE=list_size+LOCAL_DATA{planned_event_details};

planned_events_for_broadcast

This data flow is used within the Provide Driver and Traveler Services function and contains data about planned events for use in wide area broadcast messages that are automatically output to drivers and travelers 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}.

Additional Sizing Assumptions:
SIZE=list_size+BROADCAST_ITEMS{planned_event_details};

planned_events_local_data

This data flow is used within the Manage Traffic function and contains a copy of the contents of the store of planned events. This has been requested by the same function in another traffic management center (TMC) to which it will be sent by another process. The data flow consists of the following data items each of which is defined in its own DDE:

tmc_identity
+ list_size
+ list_size{planned_events_data}
+ crossing_closure_schedule.

Additional Sizing Assumptions:
SIZE=tmc_identity+list_size+MAX_ADJ_PLANNED_EVENTS{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
+ crossing_closure_schedule .

Additional Sizing Assumptions:
None

planned_events_store

This data store is used within the Manage Traffic function and holds data about events that have been planned. This means that their occurrence is certain but that it will be at some time in the future. The data store consists if the following items each of which is defined in its own DDE:

list_size
+ list_size{planned_event_details}
+ crossing_closure_schedule.

Additional Sizing Assumptions:
SIZE=list_size+MAX_PLANNED_EVENTS{planned_event_details};

planned_freight_route

This data flow contains routing information for freight equipment transported by a commercial vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

cvo_route_for_freight.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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, center steering. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=128;

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.

Additional Sizing Assumptions:
None

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 while in automatic control mode and traveling as part of a platoon. This data is what the sending vehicle is currently using 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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=128;

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. .

Additional Sizing Assumptions:
SIZE=128;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=12;

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. .

Additional Sizing Assumptions:
SIZE=12;

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. .

Additional Sizing Assumptions:
SIZE=12;

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. .

Additional Sizing Assumptions:
SIZE=12;

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 is used 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}.

Additional Sizing Assumptions:
SIZE=pollution_state_area_collection+list_size+POLLUTION_POINTS
{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). .

Additional Sizing Assumptions:
SIZE=24;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=16;

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. .

Additional Sizing Assumptions:
SIZE=12;

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. .

Additional Sizing Assumptions:
SIZE=12;

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. .

Additional Sizing Assumptions:
SIZE=12;

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. .

Additional Sizing Assumptions:
SIZE=12;

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}.

Additional Sizing Assumptions:
SIZE=pollution_state_area_collection+list_size+POLLUTION_POINTS
{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_nitrogen_oxides_pollution
+ current_sulfur_dioxide_pollution
+ current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution
+ current_particulate_pollution
+ current_pollution_location
+ area_air_quality_index.

Additional Sizing Assumptions:
None

pollution_state_data

This data flow is used within the Manage Traffic function as a means of transferring current pollution data from the Manage Emissions facility to the Manage Demand facility. It contains data about the current levels of pollution obtained from the store of pollution data and consists of the following data items each of which is defined in its own DDE:

current_ozone_pollution
+ current_nitrogen_oxides_pollution
+ current_sulfur_dioxide_pollution
+ current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution
+ current_particulate_pollution
+ current_pollution_location
+ vehicle_type.

Additional Sizing Assumptions:
None

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_nitrogen_oxides_pollution
+ current_sulfur_dioxide_pollution
+ current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution
+ current_particulate_pollution
+ current_pollution_location
+ vehicle_type.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=4;

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 also contains values of pollution levels obtained from the roadside sensors that are not due to any particular source such as road traffic. It consists of the following data items each of which is defined in its own DDE:

current_ozone_pollution
+ current_nitrogen_oxides_pollution
+ current_sulfur_dioxide_pollution
+ current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution
+ current_particulate_pollution
+ current_roadside_pollution_location.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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_nitrogen_oxides_pollution
+ current_sulfur_dioxide_pollution
+ current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution
+ current_particulate_pollution
+ vehicle_type.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=6;

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 condition to which it applies. .

Additional Sizing Assumptions:
SIZE=72;

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. .

Additional Sizing Assumptions:
SIZE=24;

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. .

Additional Sizing Assumptions:
SIZE=1;

position_warning_to_front

This data flow is used within the Provide Vehicle Monitoring and Control function and the Provide Driver and Traveler Services function. It contains a warning that there is something immediately to the front of the vehicle that is a hazard to the vehicle if it starts (or continues) to move in that direction, plus a short description of the action that the driver should take to avoid the object. The data flow consists of the following data items each of which is defined in its own DDE:

position_critical_state
+ position_advisory_message.

Additional Sizing Assumptions:
None

position_warning_to_rear

This data flow is used within the Provide Vehicle Monitoring and Control function and the Provide Driver and Traveler Services function. It contains a warning that there is something behind the vehicle that is a hazard to the vehicle if it starts (or continues) to move in that direction, plus a short description of the action that the driver should take to avoid the object. The data flow consists of the following data items each of which is defined in its own DDE:

position_critical_state
+ position_advisory_message.

Additional Sizing Assumptions:
None

position_warning_to_side

This data flow is used within the Provide Vehicle Monitoring and Control function and the Provide Driver and Traveler Services function. It contains a warning that there is something to one side or the other of the vehicle that is a hazard to the vehicle if it starts (or continues) to move in that direction, plus a short description of the action that the driver should take to avoid the object. The data flow consists of the following data items each of which is defined in its own DDE:

position_critical_state
+ position_advisory_message.

Additional Sizing Assumptions:
None

position_warnings

This data flow is sent from the Provide Vehicle Monitoring and Control function to the Provide Driver and Traveler Services function. It contains position warnings for a driver, each of which is generated when an object gets close enough to the vehicle to become a hazard if no action is taken by the driver. The data flow consists of the following data items each of which is defined in its own DDE:

position_warning_to_front
+ position_warning_to_side
+ position_warning_to_rear.

Additional Sizing Assumptions:
None

possible_defined_response_identity

This data flow is used within the Manage Traffic function and is the identity of each possible incident defined response that has been produced from an analysis of past responses and store for possible future use. .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

possible_detected_incidents

This data flow is used within the Manage Traffic function. It contains details of a suspected traffic incident which has been detected from an analysis of detector data. The incident type would be set to 'unknown' since the traffic data would not yield sufficient information on its own to define the type. The data consists of the following items each of which is defined in its own DDE:

incident_location
+ incident_type.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

possible_incidents

This data store is used within the Manage Traffic function to store details of possible incidents that have been reported from a variety of sources, but which have not yet been classified as planned events or current incidents. It contains the following data items each of which is defined in its own DDE:

current_weather_observations
+ event_name
+ event_start_time
+ event_duration
+ event_location
+ event_attendance_expected
+ incident_start_time
+ incident_duration
+ incident_location
+ incident_severity
+ incident_type
+ incident_confidence_level
+ miso_scale_weather_forecasts
+ meso_scale_weather_forecasts
+ synoptic_scale_weather_forecasts
+ climatic_scale_weather_forecasts
+ weather_scale_forecast_data_attributes
+ environmental_data_for_incidents.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

predefined_traffic_disaster_plan

This data flow is used within the Manage Traffic function. It contains a predefined disaster response and recovery plan currently held in the store of defined incident responses. .

Additional Sizing Assumptions:
SIZE=48;

predefined_traffic_evacuation_plan

This data flow is used within the Manage Traffic function. It contains a predefined evacuation plan currently held in the store of defined incident responses. .

Additional Sizing Assumptions:
SIZE=48;

predetermined_incident_response_data

This data flow represents a predetermined incident response plan. .

Additional Sizing Assumptions:
SIZE=48;

predicted_data_for_dissemination

This data flow contains a subset of the predictive model data which is pertinent to output to travelers. 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
+ m_and_c_work_plans.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=link_list_for_highways+HIGHWAY_LINKS{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}.

Additional Sizing Assumptions:
SIZE=list_size+HOV_LANES{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. .
Additional Sizing Assumptions:
SIZE = 128;

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. .

Additional Sizing Assumptions:
SIZE=((MAX_LINKS)/2)@2;

predicted_other_routes_use

This data flow is used within the Manage Traffic function. It is produced by the predictive model process and contains information about how many travelers it is predicted will be guided down each non-vehicle and non-transit route segment and the average journey time for each route segment. The data will be stored in ascending route segment number order (i.e. from 1 to the maximum number of route segments), and consists of the following data items each of which is defined in its own DDE:

route_segment_total_number
+ route_segment_total_number{route_segment_identity
+ time_period{route_segment_guided_travelers}
+ route_segment_journey_time}.

Additional Sizing Assumptions:
SIZE=route_segment_total_number+OTHER_SEGS{TIME_PERIOD{route_segment_guided_travelers}
+route_segment_journey_time+route_segment_identity};

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}.

Additional Sizing Assumptions:
SIZE=list_size+PARKING_LOTS{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}.

Additional Sizing Assumptions:
SIZE=link_list_for_highways+ROAD_LINKS{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}.

Additional Sizing Assumptions:
SIZE=route_segment_total_number+ROADWAY_SEGS{TIME_PERIOD{route_segment_guided_vehicles}
+route_segment_journey_time+route_segment_identity};

prediction_data

This data flow is used within the Manage Traffic function and is also sent by that function to the Manage Transit and Provide Driver and Traveler Services function. It contains output from the predictive model process showing predictions of traffic data for route segments on the road and highway network served by the Manage Traffic function. The data flow consists of the following items each of which is defined in its own DDE:

list_size
+ list_size{route_segment_identity
+ route_segment_volume_delay_predictions
+ route_segment_queue_delay_predictions
+ route_segment_speed_predictions
+ route_segment_occupancy_predictions}.

Additional Sizing Assumptions:
SIZE=list_size+LINKS{route_segment_identity+route_segment_volume_delay_predictions
+route_segment_queue_delay_predictions+route_segment_occupancy_predictions};

prediction_data_for_advisories

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide advisory messages to drivers and travelers (including users of the transit system) 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}.

Additional Sizing Assumptions:
SIZE=list_size+LOCAL_DATA{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 Traveler Services function. It is used to provide wide area broadcast messages to drivers and travelers in vehicles (including users of the transit system) 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.

Additional Sizing Assumptions:
SIZE=BROADCAST_ITEMS{link_speed+link_journey_time+link_delay};

prediction_request

This data flow is used within the Manage Transit function to request traffic prediction data. This data will be used to help manage deviations of transit vehicles in urban and rural areas. The traffic prediction data includes predictions of traffic data for route segments on the road and highway network. .

Additional Sizing Assumptions:
SIZE=1024;

predictive_data_for_retrieval

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

m_and_c_work_plans
+ predicted_highway_network_data
+ predicted_hov_lane_data
+ predicted_other_routes_use
+ predicted_parking_lot_data
+ predicted_road_network_data
+ predicted_road_network_use.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=4;

preferences

This data flow is used within the Provide Driver and Traveler Services function and is also sent to that function by the Provide Vehicle Monitoring and Control function as part of the data needed to request a route involving automatic highway system (AHS) lanes. It contains the preferences being placed on the choice of a route being requested by a driver or traveler and consists of the following data items each of which is defined in its own DDE:

modes
+ preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ preferred_weather_conditions
+ preferred_ridesharing_options
+ preferred_transit_options.

Additional Sizing Assumptions:
None

preferred_alternate_routes

This data flow contains the number of alternate routes that are to be provided to the driver or traveler making the route request. These alternate routes will be in addition to the primary route, which will be the one that most nearly meets the specified preferences and constraints. .

Additional Sizing Assumptions:
SIZE=1;

preferred_ridesharing_options

This data flow is used within the Provide Driver and Traveler Services function and contains the details of options that a traveler can associate with a ridesharing request as part of a proposed trip. .

Additional Sizing Assumptions:
SIZE=12;

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. .

Additional Sizing Assumptions:
SIZE=12;

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. .

Additional Sizing Assumptions:
SIZE=40;

preferred_transit_options

This data flow is used within the Provide Driver and Traveler Services function and contains details of the transit route options and modes of transit travel that a traveler has requested as part of a trip request. In addition to transit bus and light rail options, this data flow includes transit travel modes such as: automated guideway (bus rapid transit or BRT), cable car, commuter rail, demand responsive transit services, ferry boat, jitney, monorail, trolley bus, aerial tramway, vanpool and personal rapid transit. These examples appear in the National Transit Database. .

Additional Sizing Assumptions:
SIZE=12;

preferred_weather_conditions

This data flow is used within the Provide Driver and Traveler Services function and contains preferences about weather conditions that the traveler has selected for a portion of a trip, e.g. only travel on dry weather, avoid freezing conditions, etc. .

Additional Sizing Assumptions:
SIZE=12;

preplanned_disaster_response_plan

This data flow contains the preplanned disaster response and recovery plans. These plans are used by emergency disaster response functions to create a response and recovery plan that address a current disaster. The data flow consists of the following data item which is defined in its own DDE:

rail_preplanned_disaster_response_plan
+ transit_preplanned_disaster_response_plan
+ oem_preplanned_disaster_response_plan
+ m_and_c_preplanned_disaster_response_plan
+ traffic_preplanned_disaster_response_plan.

Additional Sizing Assumptions:
None

preplanned_evacuation_plan

This data flow contains the preplanned evacuation plans. These plans are used by emergency evacuation management functions to address potential evacuation scenarios. The data flow consists of the following data items each of which is defined in its own DDE:

rail_preplanned_evacuation_plan
+ transit_preplanned_evacuation_plan
+ oem_preplanned_evacuation_plan
+ m_and_c_preplanned_evacuation_plan
+ traffic_preplanned_evacuation_plan.

Additional Sizing Assumptions:
None

price_data

This data flow contains data on the current prices being charged for tolls, parking lots and transit fares, plus the response to a request from the Manage Demand facility for changes in the current prices. It consists the following data items each of which is defined in its own DDE:

parking_lot_charge_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.

Additional Sizing Assumptions:
None

price_data_for_services

This data store is used within the Provide Electronic Payments Services function to store data about prices being charged for tolls, parking lot spaces and regular transit fares. It consists of the following data items each of which is defined in its own DDE:

parking_lot_price_details
+ toll_price_values
+ transit_fare_data.

Additional Sizing Assumptions:
None

price_request

This data flow is sent from the Manage Traffic function to the Provide Electronic Payment Service function. It is used to request the current prices for tolls, parking lot spaces and transit fares, to request changes to their current prices in order that the modal split of trips being undertaken by travelers can be changed, and to request parking lot and toll tag data for traffic journey time measurement. The data flow consists of the following data items each of which is defined in its own DDE:

parking_lot_charge_change_request
+ parking_lot_charge_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.

Additional Sizing Assumptions:
None

prices

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function and contains data on the current prices being charged for tolls, parking lots and transit fares. It consists the following data items each of which is defined in its own DDE:

toll_price_data
+ parking_lot_price_data
+ transit_fare_data.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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}.

Additional Sizing Assumptions:
SIZE=list_size+TOLL_PLAZAS{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.
.

Additional Sizing Assumptions:
SIZE=256;

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.

Additional Sizing Assumptions:
None

processed_env_info

This data flow contains processed environmental and road weather information. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

processed_env_info_for_display

This data flow contains processed environmental and road weather information for display to the maintenance and construction center personnel. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

processed_infrastructure_sensor_data

This data flow consists of processed information concerning the condition of the roadway infrastructure and is based on data from sensor equipment located on the roadside and on-board maintenance and construction vehicles. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_data_for_m_and_c
+ mcv_infrastructure_sensor_data.

Additional Sizing Assumptions:
None

processed_speed_sensor_data

This data flow represents speed sensor data from one or more sensors that has been processed at the roadside to provide aggregated speed information for the vehicles being measured by the sensors. The information could be provided ready for viewing at the receiving process (e.g. as a histogram of speed) or it could be provided in a form that requires additional processing at the receiving process before the information is displayed to operators. .

Additional Sizing Assumptions:
SIZE=256;

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. .

Additional Sizing Assumptions:
SIZE=32;

rail_available_resources

This data flow contains rail resources that are available for use. It includes tracks, locomotives, stations, rail cars, etc. .

Additional Sizing Assumptions:
SIZE= 48;

rail_disaster_response_plan

This data flow contains the resources, and schedule that are available from rail operations that may be used to respond to and to recover from the current disaster. The data flow consists of the following data items which are defined in their own DDE:

disaster_response_rail_available_resources
+ disaster_response_rail_schedule.

Additional Sizing Assumptions:
None

rail_emergency_status_report

This flow contains the status of rail operations in supporting an emergency event. .

Additional Sizing Assumptions:
SIZE=48;

rail_evacuation_plan

This data flow contains actual resources, and schedule that are available from rail operations that may be used to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

evacuation_rail_available_resources
+ evacuation_rail_schedule.

Additional Sizing Assumptions:
None

rail_operations_advisories

This data flow contains advisory information for HRI vehicular traffic that has been derived from information received from rail operations. .

Additional Sizing Assumptions:
SIZE = 128;

rail_operations_data

This data flow contains requested and updated current rail operations data for the Manage Alerts and Advisories process. .

Additional Sizing Assumptions:
SIZE = 128;

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. .

Additional Sizing Assumptions:
SIZE = 128;

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. .

Additional Sizing Assumptions:
SIZE = 128;

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. .

Additional Sizing Assumptions:
SIZE = 128;

rail_operations_query

This data flow provides requests current rail operations data from the Manage Rail Traffic Control Data process. .

Additional Sizing Assumptions:
SIZE = 128;

rail_operations_requests

This data flow is generated in response to a need for HRI status for rail operations. .

Additional Sizing Assumptions:
SIZE = 128;

rail_operations_update

This data flow provides urgent information from rail operations to the Manage Alerts and Advisories process for dissemination to ITS users. .

Additional Sizing Assumptions:
SIZE = 128;

rail_preplanned_disaster_response_plan

This data flow contains the preplanned disaster response and recovery plan for rail operations. These plans contain rail operations assets, schedules, etc. that rail has planned to utilize prior to the occurrence of a disaster. The data flow consists of the following data items which are defined in their own DDE:

planned_disaster_response_rail_available_resources
+ planned_disaster_response_rail_schedule.

Additional Sizing Assumptions:
None

rail_preplanned_evacuation_plan

This data flow contains the preplanned evacuation plan for rail operations. These plans contain rail operations assets, schedules, etc. that rail has planned to utilize to support an evacuation. The data flow consists of the following data items which are defined in their own DDE:

planned_evacuation_rail_available_resources
+ planned_evacuation_rail_schedule.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE = 128;

rail_services_costs

This data flow contains details of the costs for a traveler's use of heavy rail services that may be suitable for inclusion in the response to a traveler's trip request. These may be all on the same route, or on different routes. The data flow consists of the following data item which is defined in its own DDE:

cost.

Additional Sizing Assumptions:
SIZE=4{cost};

rail_services_destination

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

route_point.

Additional Sizing Assumptions:
None

rail_services_destination_arrival_time

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

time.

Additional Sizing Assumptions:
None

rail_services_details

This data flow is used within the Provide Driver and Traveler Services function and contains details of the heavy rail services that may be suitable for use by a traveler as part of a proposed trip. It consists of the following data items each of which is defined in its own DDE:

rail_services_costs
+ rail_services_routes
+ rail_services_schedules.

Additional Sizing Assumptions:
None

rail_services_intermediate_arrival_time

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

time.

Additional Sizing Assumptions:
None

rail_services_intermediate_depart_time

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

time.

Additional Sizing Assumptions:
None

rail_services_intermediate_point

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

route_point.

Additional Sizing Assumptions:
None

rail_services_origin

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

route_point.

Additional Sizing Assumptions:
None

rail_services_origin_depart_time

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

time.

Additional Sizing Assumptions:
None

rail_services_route_details

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

rail_services_origin
+ rail_services_intermediate_point
+ rail_services_destination.

Additional Sizing Assumptions:
None

rail_services_routes

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

rail_services_route_details.

Additional Sizing Assumptions:
SIZE=2{rail_services_route_details};

rail_services_schedule_details

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

rail_services_origin_depart_time
+ rail_services_intermediate_arrival_time
+ rail_services_intermediate_depart_time
+ rail_services_destination_arrival_time.

Additional Sizing Assumptions:
None

rail_services_schedules

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

rail_services_schedule_details.

Additional Sizing Assumptions:
SIZE=4{rail_services_schedule_details};

rail_system_status_for_disaster

This data flow consists of a report of the current status of the rail system as viewed by rail operations for disaster response and recovery. .

Additional Sizing Assumptions:
SIZE=48;

rail_system_status_for_evacuation

This data flow consists of a report of the current status of the rail system as viewed by rail operations for evacuation. .

Additional Sizing Assumptions:
SIZE=48;

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. .

Additional Sizing Assumptions:
SIZE = 4096;

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. .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
SIZE=ramp_list
  +RAMPS{vehicle_speed+vehicle_headway+vehicle_occupancy+private_vehicle_occupants};

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}.

Additional Sizing Assumptions:
SIZE=list_size+RAMP_CONTROLLERS{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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
SIZE=list_size+RAMPS{ramp_identity};

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. .

Additional Sizing Assumptions:
SIZE=17;

ramp_signal_state

This data flow is used within the Manage Traffic function to indicate the required state of the ramp meter controllers at the entrance to the highway ramps controlled by the TMC. The data flow consists of the following data items each of which is defined in its own DDE:

ramp_list
+ 1{ramp_controls}list_size.

Additional Sizing Assumptions:
SIZE=ramp_list+RAMPS{ramp_controls};

reclassify_incidents

This data flow is used within the Manage Traffic function to request that the process to re-classify incidents is run.
.

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=32;

region_identity

This data flow contains the identity of the region for which traveler information is requested or the region for which information is being returned to the traveler. .

Additional Sizing Assumptions:
SIZE=24;

remote_transit_vehicle_control

This data flow contains the command to disable a transit vehicle or to reset transit vehicle disabling if previously set. The data flow consists of the following data items each of which is defined in its own DDE:

remote_transit_vehicle_disable
+ transit_vehicle_disable_reset.

Additional Sizing Assumptions:
None

remote_transit_vehicle_disable

This data flow contains the command to disable a transit vehicle. Conditions where this command may occur include an incident in progress concerning the transit vehicle, such as a hijacking or armed robbery. This command would not be used for a less serious incident, such as an argument between passengers, or for a health emergency (e.g., heart attack) where the vehicle might be moving towards a hospital, or paramedics are on the way. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time
+ transit_vehicle_location.

Additional Sizing Assumptions:
None

remote_traveler_information

This data flow is used within the Provide Driver and Traveler Services function and contains the traveler information to be displayed to a traveler at a kiosk or remote traveler support system. The data flow consists of the following data items each of which is defined in its own DDE:

kiosk_identity
+ transit_services_for_distribution_to_kiosks
+ transit_deviations_for_broadcast_to_kiosks
+ traffic_data_for_broadcast_to_kiosks
+ evacuation_traveler_information_for_rts
+ transportation_system_status_for_kiosks
+ wide_area_alert_information_for_kiosks.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=64;

request_current_traffic_media_data

This data flow is used within the Manage Traffic function to request traffic details for output by the media. 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.

Additional Sizing Assumptions:

None

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. .

Additional Sizing Assumptions:
SIZE=4;

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. 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}.

Additional Sizing Assumptions:
SIZE=list_size+1{HIGHWAY_SIGNS+ROAD_SIGNS}{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. .

Additional Sizing Assumptions:
SIZE=4;

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}.

Additional Sizing Assumptions:
SIZE=list_size+INDICATORS{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_data_for_em
+ incident_data_for_dre
+ vehicle_pollution_alert
+ emergency_traffic_control_response

+ incident_video_for_emergency_services
+ traffic_data_for_emergency_services.

Additional Sizing Assumptions:
None

request_erms_acknowledge

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

emergency_request_vehicle_acknowledge
+ emergency_data_request
+ vehicle_security_system_commands.

Additional Sizing Assumptions:
None

request_erms_message

This data flow is used to transfer data (through an automated process) between the Provide Vehicle Monitoring and Control function and the Manage Emergency Services function. It contains the following data item which is defined in its own DDE:

emergency_request_vehicle_details
+ vehicle_status_update
+ vehicle_security_system_commands_request.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=4;

request_for_emergency_transit_support

This flow contains a request from emergency management for transit management to support an emergency event. It contains requested transit schedules, fares, routes and resources. The data flow consists of the following data items which are defined in their own DDE:

transit_disaster_response_plan.

Additional Sizing Assumptions:
None

request_for_m_and_c_schedule

This data flow is used within the Manage Maintenance and Construction function and contains a request for information from center personnel about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. .

Additional Sizing Assumptions:
SIZE=4;

request_for_traffic_info

This data flow is used within the Manage Transit function to gather traffic information to help manage demand responsive transit schedules and routes. The traffic data requested should include at a minimum roadway environmental conditions, current incident data, and the state of traffic flow. .

Additional Sizing Assumptions:
SIZE = 1024;

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. .

Additional Sizing Assumptions:
SIZE=8;

request_images_for_analysis

This data flow is used by processes within the Emergency Services function. It contains the request for surveillance video image data in order to perform imaging matching analysis on that data. This data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ transit_vehicle_location
+ transit_vehicle_identity
+ surveillance_device_type_identity.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=4;

request_link_journey_time

This data flow is used within the Manage Traffic function to request link journey times for output by the media. 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}.

Additional Sizing Assumptions:
SIZE=list_size+LINKS{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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. 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.

Additional Sizing Assumptions:
None

request_m_and_c_routing_map_data

This data flow is used within the Manage Maintenance and Construction function to request an update of the current digitized map data used as a background to assist in maintenance and construction vehicle routing. The map data produced as a result of this request will be provided by a specialist supplier. .

Additional Sizing Assumptions:
SIZE=4;

request_m_and_c_status_display_update

This data flow is used within the Manage Maintenance and Construction function to request an update of the current digitized map data used as a background for displays of data about maintenance and construction activities. .

Additional Sizing Assumptions:
SIZE=4;

request_m_and_c_tracking_display_update

This data flow is used within the Manage Maintenance and Construction function to request an update of the current digitized map data used as a background for maintenance and construction vehicle locations for tracking purposes. The map data produced as a result of this request will be provided by a specialist supplier. .

Additional Sizing Assumptions:
SIZE=4;

request_m_and_c_wz_status_display_update

This data flow is used within the Manage Maintenance and Construction function to request an update of the current digitized map data used as a background for displays of data about work zone activities. The map data produced as a result of this request will be provided by a specialist supplier. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

request_other_route_segment_data

This data flow is used within the Provide Driver and Traveler Services function to request route segment data for the geographic area(s) not covered by the local route segment data store. .

Additional Sizing Assumptions:
SIZE=64;

request_other_routes_map_update

This data flow is used within the Provide Driver and Traveler Services function and contains a request which has originated from the ISP operator for an update to the store of digitized map data used by the other routes selection process to be requested from the map provider. .

Additional Sizing Assumptions:
SIZE=1;

request_other_TMC_data

This data flow is used within the Manage Traffic function to request data from Traffic Management Centers (TMC's) that cover other geographic and/or jurisdictional areas outside that served by the local TMC. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=4;

request_possible_incidents_data

This data flow is used within the Manage Traffic function to request data currently held in the store of possible incidents. It consists of the following data items each of which is defined in its own DDE :

incident_type
+ incident_request_criteria.

Additional Sizing Assumptions:
None

request_predefined_traffic_disaster_plan

This data flow is used within the Manage Traffic function. It contains a request for a predefined disaster response and recovery plan. .

Additional Sizing Assumptions:
SIZE=48;

request_predefined_traffic_evacuation_plan

This data flow is used within the Manage Traffic function. It contains a request for a predefined evacuation plan. .

Additional Sizing Assumptions:
SIZE=48;

request_predetermined_incident_response_data

This data flow represents a request information regarding a predetermined incident response from the store of defined responses. .

Additional Sizing Assumptions:
SIZE=48;

request_predictive_traffic_media_data

This data flow is used within the Manage Traffic function to request traffic details for output by the media. 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.

Additional Sizing Assumptions:
None

request_prices

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Service function to request the current prices for tolls, parking lot spaces and transit fares. .

Additional Sizing Assumptions:
SIZE=1;

request_rail_schedules_data

This data flow contains information required to request scheduled rail operations for a specific locality and time frame. .

Additional Sizing Assumptions:
SIZE = 128;

request_roadside_fare_payment

This data flow is sent from the Manage Transit function to the Provide Electronic Payment Services function to request payment of a transit fare from the roadside, i.e. a transit stop. It consists of the following data items each of which is defined in its own DDE:

transit_fare
+ transit_roadside_fare_collection_identity
+ traveler_roadside_tag_identity.

Additional Sizing Assumptions:
None

request_route_segment_data

This data flow is used within the Provide Driver and Traveler Services function. It contains an action flag set to find data or delete data, and a list of links for which data must either be found or deleted. .

Additional Sizing Assumptions:
SIZE=1024;

request_route_selection_map_update

This data flow is used within the Provide Driver and Traveler Services function and contains a request which has originated from the ISP operator for an update to the store of digitized map data used by the vehicle routes selection process to be requested from the map provider. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=1;

request_static_data_for_traffic_control

This data flow is used within the Manage Traffic function to request data contained in the data store of static data for traffic control. .

Additional Sizing Assumptions:
SIZE=64;

request_traffic_flow

This data flow is used within the Manage Traffic function to request traffic flow data for output by the media. 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}.

Additional Sizing Assumptions:
SIZE=list_size+LINKS{link_identity};

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. .

Additional Sizing Assumptions:
SIZE=4;

request_traffic_media_data

This data flow is used within the Manage Traffic function to request traffic data for output to the media. The request must specify whether the data to be output to the media must include current, long term or predicted data, or any combination of the three, or the traffic conditions. 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.

Additional Sizing Assumptions:
None

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 the three. .

Additional Sizing Assumptions:
SIZE=4;

request_transit_map_update

This data flow is used within the Manage Transit function to request an update of the current digitized map data. This data may be used as input to the transit route generation process, or as a background for displays of transit services requested by the transit system operator. It is generated as a result of a specific request for an update from the transit system operator. The map data produced as a result of this request will be provided by a specialist supplier. .

Additional Sizing Assumptions:
SIZE=4;

request_transit_operator_authentication

This data flow is used by processes within the Manage Transit function. It contains the request to authenticate the transit vehicle operator to the transit vehicle when he attempts to logon to the vehicle. This data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_location
+ transit_vehicle_identity
+ transit_vehicle_operator_identity.

Additional Sizing Assumptions:
None

request_transit_preplanned_incident_responses

This data flow is used within the Manage Transit function and contains the request for the store management process to output the contents of the store that holds the preplanned responses to certain types of transit incidents. .

Additional Sizing Assumptions:
SIZE=1024;

request_transit_service_external_data

This data flow is used within the Manage Transit function and is the request for the output of the current transit services (routes and schedules) for internal used by processes outside of the Manage Transit function. .

Additional Sizing Assumptions:
SIZE=2;

request_transit_service_internal_data

This data flow is used within the Manage Transit function and is the request for the output of the current transit services (routes and schedules) for internal used by processes within the function. .

Additional Sizing Assumptions:
SIZE=2;

request_transit_services_data_for_output

This data flow is used within the Manage Transit function and is the request for the current transit services (routes and schedules). The request is generated as a result of input from the transit system operator, to whom the data will be sent via the interface process. .

Additional Sizing Assumptions:
SIZE=2;

request_transit_transfer_points

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Transit function to request the list of transit transfer points. .

Additional Sizing Assumptions:
SIZE=1;

request_traveler_roadside_image

This data flow is sent from the Provide Electronic Payment Services function to the Manage Transit function. It contains a request for the supply of the image of a traveler who has violated the transit fare payment process at a roadside fare collection point. .

Additional Sizing Assumptions:
SIZE=4;

request_traveler_vehicle_image

This data flow is sent from the Provide Electronic Payment Services function to the Manage Transit function. It contains a request for the supply of the image of a traveler who has violated the transit fare payment process at an on-board vehicle fare collection point. .

Additional Sizing Assumptions:
SIZE=4;

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. 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}.

Additional Sizing Assumptions:
SIZE=list_size+LINKS{link_identity};

request_vehicle_fare_payment

This data flow requests payment processing of one or more transit fare transactions from on-board a transit vehicle. This flow provides for both batch (low value/high usage) fare transactions (e.g. city bus routes) and for high value/low volume, interactive, near real-time transactions (e.g. individualized flexible transit). The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_vehicle_identity
+ transit_vehicle_fare_collection_method
+ list_size{transit_fare
+ traveler_vehicle_tag_identity}.

Additional Sizing Assumptions:
SIZE=transit_route_number+transit_vehicle_fare_collection_method
+transit_vehicle_identity+1{transit_fare+traveler_vehicle_tag_identity};

reservation_status

This data flow is used within the ITS functions to show the status of a reservation that is being or has been requested. If the flag is set to true the reservation was accepted, but if set to false, then the reservation was denied. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

resource_deployment_status

This data flow indicates the availability of the requested traffic management resources and provides current status of their deployment as well as the contact information about the responding agency .

Additional Sizing Assumptions:
SIZE=64;

resource_needs_from_scheduler

This data flow is used within the Manage Maintenance and Construction function and contains the resources needed by the function that schedules maintenance and construction activities. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{mcv_vehicle_type
+ m_and_c_materials_type
+ m_and_c_materials_quantity
+ m_and_c_equipment_type
+ m_and_c_equipment_quantity
+ date
+ time}.

Additional Sizing Assumptions:

None

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.

Additional Sizing Assumptions:
None

resource_request_to_personnel

This data flow is used within the Manage Maintenance and Construction function to officially request the use of resources from center personnel. Although primarily requested on behalf of other agencies (such as emergency, traffic, etc.), it could also be used to assist in prioritizing the use of resources within maintenance and construction. This data flow contains a request and a list of the resources requested, including equipment, maintenance and construction vehicles, and materials. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{mcv_vehicle_type
+ m_and_c_materials_type
+ m_and_c_materials_quantity
+ m_and_c_equipment_type
+ m_and_c_equipment_quantity
+ date
+ time}.

Additional Sizing Assumptions:
None

resource_response_from_personnel

This data flow is used by center personnel to respond to official requests for maintenance and construction resources and contains a list of the resources granted. Although primarily used to respond to requests made on behalf of other agencies (such as emergency, traffic, etc.), it could also be used to assist in prioritizing the use of resources within maintenance and construction. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{mcv_vehicle_type
+ m_and_c_materials_type
+ m_and_c_materials_quantity
+ m_and_c_equipment_type
+ m_and_c_equipment_quantity
+ date
+ time}.

Additional Sizing Assumptions:
None

response_for_emergency_transit_support

This flow contains a status response from transit management for emergency management. It informs emergency management of how transit is responding to a request for supporting an emergency event. The data flow consists of the following data items which are defined in their own DDE:

transit_emergency_status_report.

Additional Sizing Assumptions:
None

retained_traveler_guidance_data

This data store is used within the Provide Driver and Traveler Services function and is used to hold data previously input as part of a traveler route request. It is retained to prevent the traveler having to re-input often used data. .

Additional Sizing Assumptions:
SIZE=1024000;

retained_vehicle_guidance_data

This data store is used within the Provide Driver and Traveler Services function and is used to hold data previously input as part of a driver route request. It is retained to prevent the driver having to re-input often used data. .

Additional Sizing Assumptions:
SIZE=1024000;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

retrieved_traffic_media_data

This data flow contains the response to a request for particular data to be retrieved from the stores of current, long term and predictive model data. This data will be used as the basis for traffic information data that is provided to the Media. The data flow consists of the following data items each of which is defined in its own DDE:

current_data_for_retrieval
+ long_term_data_for_retrieval
+ predictive_data_for_retrieval.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

reversible_lane_control

This data flow provides control commands for reversible lanes. .

Additional Sizing Assumptions:
SIZE=48;

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.

Additional Sizing Assumptions:
None

reversible_lane_status

This data flow is used within the Manage Traffic function and reports the status of a reversible lane. The data flow reports the current direction of the reversible lane (i.e. northbound or southbound). .

Additional Sizing Assumptions:
SIZE=64;

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.

Additional Sizing Assumptions:
None

ride_segments

This data flow is used within the Manage Transit function and defines the transit route segment(s) for which payment is being or has been provided or for which prices have been requested or supplied. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_route_segment_number}.

Additional Sizing Assumptions:
SIZE=list_size+TRANSIT_SEGS{transit_route_segment_number};

rideshare_confirmation

This data flow is used within the Provide Driver and Traveler Services function to show that a traveler requested rideshare has been confirmed of not. It consists of the following data items each of which is defined in its own DDE:

reservation_status
+ traveler_identity.

Additional Sizing Assumptions:
None

rideshare_confirmation_data

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

reservation_status
+ rideshare_selection_number.

Additional Sizing Assumptions:
None

rideshare_cost

This data flow defines the cost of a single use of the ridesharing services .

Additional Sizing Assumptions:
SIZE=2;

rideshare_data

This store is used within the Provide Driver and Traveler Services function to hold data about available rideshare routes and travelers. It consists of the following data items each of which is defined in its own DDE:

rideshare_eligibility_data
+ rideshare_confirmation_data
+ rideshare_details.

Additional Sizing Assumptions:
None

rideshare_data_for_archive

This data flow is used within the Provide Driver and Traveler Services function to provide data to the data archive about the available rideshare routes and travelers. 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.

Additional Sizing Assumptions:
None

rideshare_details

This data flow is used within the Provide Driver and Traveler Services function and contains a list of potential ridesharing matches for output to the traveler. This data will provide information on the other participants in the proposed rideshare, pick-up and drop-off points, etc. .

Additional Sizing Assumptions:
SIZE=2048;

rideshare_eligibility_data

This data flow is used within the Provide Driver and Traveler Services function to identify potential rideshare participants and to determine their eligibility. .

Additional Sizing Assumptions:
SIZE=32;

rideshare_for_archive

This data flow is used within the Provide Driver and Traveler Services function to provide data to the data archive about the requests for rideshare and available rideshare routes and travelers. It consists of the following data items each of which is defined in its own DDE:

rideshare_data_for_archive
+ traveler_rideshare_request_for_archive.

Additional Sizing Assumptions:
None

rideshare_for_archive_attributes

This data flow is used within the Provide Driver and Traveler Services function to provide data attribute information to the data archive about the requests for rideshare and available rideshare routes and travelers. This data flow consists of the following items each of which is defined in its own DDE:

quality_control_attribute
+ data_reductions

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

Additional Sizing Assumptions:
None

rideshare_ineligible_status_notification

This data flow is used within the Provide Driver and Traveler Services function and is used to indicate that a traveler who wishes to participate in a rideshare has been found to be ineligible. .

Additional Sizing Assumptions:
SIZE=8;

rideshare_information

This data flow is used within the Provide Driver and Traveler Services function to transfer information about rideshare requests, rideshare routes and travelers, and requests for rideshare as part of a traveler's proposed trip request. It contains the following data items each of which is defined in its own DDE:

rideshare_confirmation
+ rideshare_response
+ rideshare_data_for_archive
+ traveler_rideshare_request_for_archive.

Additional Sizing Assumptions:
None

rideshare_payment_confirmation

This data flow is used by the Provide Electronic Payment Services function to confirm to the Provide Driver and Traveler Services function that payment for a traveler's request and confirmation of a successful rideshare match has been made. .

Additional Sizing Assumptions:
SIZE=1;

rideshare_payment_request

This data flow is used by the Provide Driver and Traveler Services function to request that the Provide Electronic Payment Services function carries out the transactions needed for payment of charges necessary for a traveler to make use of ridesharing services. It consists of the following data items each of which is define in its own DDE:

credit_identity
+ rideshare_cost.

Additional Sizing Assumptions:
None

rideshare_request_and_confirmation

This data flow is used within the Provide Driver and Traveler Services function to transfer information about rideshare requests. It contains the following data items each of which is defined in its own DDE:

traveler_rideshare_confirmation
+ traveler_rideshare_request.

Additional Sizing Assumptions:
None

rideshare_request_from_eligible_traveler

This data flow is used within the Provide Driver and Traveler Services function. It contains data about a ride request that has been screened to ensure the traveler's eligibility for use of the service. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ traveler_rideshare_data
+ traveler_rideshare_preferences
+ traveler_rideshare_constraints.

Additional Sizing Assumptions:
None

rideshare_response

This data flow is used within the Provide Driver and Traveler Services function to provide the response to a traveler's rideshare request. It contains the following data items each of which is defined in its own DDE:

rideshare_details
+ rideshare_selection_number
+ traveler_identity.

Additional Sizing Assumptions:
None

rideshare_selection

This data flow is used within the Provide Driver and Traveler Services function and contains details of the rideshare that has been prepared in response to a traveler's rideshare request. It consists the following data items each of which is defined in its own DDE:

rideshare_details
+ rideshare_selection_number
+ traveler_identity.

Additional Sizing Assumptions:
None

rideshare_selection_number

This data flow is used within the Provide Driver and Traveler Services function to provide the identification number for a rideshare selection that has been made in response to a traveler's request. This number is used to identify a rideshare selection in all subsequent transactions. .

Additional Sizing Assumptions:
SIZE = 8;

road_conditions

This data flow contains current and forecasted road conditions. Road conditions includes surface or subsurface temperature, state (e.g. dry, wet, ice, snow, flooded), and residual chemical factors of the road surface as well as visibility near the road surface. This data is provided by road segment. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{link_identity
+road_segment_conditions}.

Additional Sizing Assumptions:
SIZE=ROADWAY_SEGS{link_identity+road_segment_conditions};

road_control_devices

This data flow includes information about each device used to output traffic management commands to vehicle drivers at road junctions, including those that control vehicles at multimodal and railroad grade crossings. Data for devices at highway entry ramps is provided separately. This data flow consists of the following data items each of which is defined in its own DDE:

crossing_equipment_data_for_roads
+ hri_data_for_roads
+ intersection_equipment_data
+ pedestrian_equipment_data.

Additional Sizing Assumptions:
None

road_data

This data flow contains definitions of the road network in the geographic area covered by the particular ITS to which the function belongs and is used as a source of route guidance data. .

Additional Sizing Assumptions:
SIZE=20480000;

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}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_ROAD_SEGS{route_segment_end_point+route_segment_identity
+route_segment_start_point+route_segment_downstream_identity
+route_segment_upstream_identity};

road_network_info_for_transit

This data flow is used in the Manage Transit function to send details of road and weather conditions, work zone information, asset restrictions, and other road network status from the process that manages transit vehicle operations data to the process that determines transit vehicle schedule deviations. It contains the following data items each of which is defined in its own DDE:

fstws-surface_trans_weather_observations
+ fstws-surface_trans_weather_forecasts
+ fws-current_weather_observations
+ fws-weather_forecasts
+ work_zone_info_for_transit
+ asset_restrictions_for_transit
+ road_weather_info_for_transit.

Additional Sizing Assumptions:
None

road_network_info_from_traffic

This data flow is sent from the Manage Traffic function to the Manage Maintenance and Construction function and is used to send details of current and forecasted traffic information, road and weather conditions, and other road network status. It contains the following data items each of which is defined in its own DDE:

link_state_data
+ roadway_environment_conditions
+ predicted_road_network_data
+ current_data.

Additional Sizing Assumptions:
None

road_network_info_to_mcv

This data flow is used within the Manage Maintenance and Construction function and contains a view of the road network for the maintenance and construction vehicle systems. This information includes travel times, route usage, and incidents and incident response, and environmental information. The data flow consists of the following item which is defined in its own DDE:

m_and_c_view_of_road_network.

Additional Sizing Assumptions:
None

road_network_status_for_disaster_and_evacuation

This data flow is used to communicate the general status of the transportation system as seen by maintenance and construction during a disaster or evacuation. The data flow consists of the following data items each of which are defined in their own DDE:

m_and_c_view_of_road_network_for_disaster
+ m_and_c_view_of_road_network_for_evacuation.

Additional Sizing Assumptions:
None

road_segment_conditions

This data flow contains current and forecasted road conditions for a single road segment. Road conditions includes temperature, state (e.g. dry, wet, ice, snow, flooded), and residual chemical factors of the road surface as well as visibility near the road surface. .

Additional Sizing Assumptions:
SIZE=32;

road_segment_location

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveler Services function and contains the geographic location of the start and end points of the road segment(s) to which an indicator displays its information. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{route_segment_end_point
+ route_segment_identity
+ route_segment_start_point}.

Additional Sizing Assumptions:
SIZE=1{INTERSECTIONS+PEDESTRIANS+CROSSINGS+RAMPS+SIGNS}{route_segment_end_point
+list_size+route_segment_identity+route_segment_start_point};

road_segment_weather_conditions

This data flow contains current and forecasted road weather conditions for a single road segment. Road weather conditions includes temperature, humidity, precipitation, as well as wind conditions near the road surface. .

Additional Sizing Assumptions:
SIZE=32;

road_weather_conditions

This data flow contains current and forecasted road weather conditions. Road weather conditions includes temperature, humidity, precipitation, as well as wind conditions near the road surface. This data is provided by road segment. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{link_identity
+road_segment_weather_conditions}.

Additional Sizing Assumptions:
SIZE=ROADWAY_SEGS{link_identity+road_segment_conditions};

road_weather_info_for_emergency

This data flow contains environmental and road weather information that has been formatted for distribution to the manage emergency services function. The data may be filtered or aggregated prior to this formatting. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

road_weather_info_for_isp

This data flow contains environmental and road weather information that has been formatted for distribution to the provide driver and traveler services function. The data may be filtered or aggregated prior to this formatting. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

road_weather_info_for_traffic

This data flow contains environmental and road weather information that has been formatted for distribution to the manage traffic function. The data may be filtered or aggregated prior to this formatting. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

road_weather_info_for_transit

This data flow contains environmental and road weather information that has been formatted for distribution to the manage transit function. The data may be filtered or aggregated prior to this formatting. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

roadside_archive_data_request

This data flow from the Manage Archive Data function contains the request for the data held by the Manage Traffic function. The request for data may include the description of the data required or a timeframe over which the requested information may be available. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
SIZE=link_list+LINKS{link_conditions};

roadside_crew_warning_given

This data flow contains a time-stamped indication that an intrusion warning was generated via a roadside device, along with details of the warning (to whom was it sent or how was it sent) .

Additional Sizing Assumptions:
SIZE = 16;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

roadside_device_control_to_work_zone

This DFD flow represents the data flows from Provide Roadside Control Facilities to Control Work Zone Activity and includes DMS and HAR status information. It consists of the following items each of which is defined in its own DDE:

dms_status_for_m_and_c
+ har_status_for_m_and_c
+ dms_status_for_mcv.

Additional Sizing Assumptions:
None

roadside_device_status

This data flow is used to collect device status data, including fault information and current operational state, from roadside devices such as smart probe beacons, CCTVs, in-vehicle signing equipment, automated roadway treatment systems, barrier and safeguard systems, etc. .
Additional Sizing Assumptions:
SIZE=16;

roadside_passenger_data_timeframe

Indicates the time frame over which the data has been collected. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

roadway_closures

This data flow contains the current status of links in the roadway system. Included are both links that are currently not available for use on the roadway system and those links that remain open. The data flow consists of the following data item which is defined in its own DDE:

link_status.

Additional Sizing Assumptions:
None

roadway_control_request_for_detours

This data flow contains request for roadway controls to provide detour routes in support of emergency operations during a disaster. The request could be for a long term or short term detour. It might also include a request to remove vehicle restrictions such as HOV on facilities. .

Additional Sizing Assumptions:
SIZE=48;

roadway_control_response_for_detours

This data flow contains response from roadway controls on the status of setting up and providing detour routes in support of emergency operations during a disaster. .

Additional Sizing Assumptions:
SIZE=48;

roadway_detours_and_closures

This data flow contains the list of roadway closures and detour routes in support of disaster response and recovery efforts. The data flow consists of the following data items each of which is defined in their own DDE:

highway_closures
+ roadway_closures.

Additional Sizing Assumptions:
None

roadway_detours_and_closures_for_em

This data flow contains the list of roadway closures and detours for use by the emergency management function during a disaster or other emergency. Emergency Management can use this information to update its efforts to help support the disaster response and recovery efforts. The data flow consists of the following data item which is defined in its own DDE:

roadway_detours_and_closures.

Additional Sizing Assumptions:
None

roadway_detours_and_closures_for_isp

This data flow contains the list of roadway closures and detours for use by information service providers during a disaster or other emergency. The data flow consists of the following data item which is defined in its own DDE:

roadway_detours_and_closures.

Additional Sizing Assumptions:
None

roadway_detours_and_closures_for_m_and_c

This data flow contains the list of roadway closures and detours for use by the Maintenance and Construction during a disaster or other emergency. Maintenance can use this information to update schedules, work plans, etc., to help support the disaster response and recovery efforts. The data flow consists of the following data item which is defined in its own DDE:

roadway_detours_and_closures.

Additional Sizing Assumptions:
None

roadway_detours_and_closures_for_traffic

This data flow contains the list of roadway closures and detour routes in support of disaster response and recovery efforts. The data flow consists of the following data item which is defined in its own DDE:

roadway_detours_and_closures.

Additional Sizing Assumptions:
None

roadway_detours_and_closures_for_transit

This data flow contains the list of roadway closures and detours for use by the Manage Transit function during a disaster or other emergency. Transit Management can use this information to update schedules, routes, etc., to help support the disaster response and recovery efforts. The data flow consists of the following data item which is defined in its own DDE:

roadway_detours_and_closures.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
SIZE=link_list+LINKS{link_environment_conditions};

roadway_fault_device_status

This data flow is used to collect and process indicator fault status within the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

dms_status
+ har_status
+ smart_probe_reader_status
+ traffic_control_device_status
+ vehicle_sign_data_status.

Additional Sizing Assumptions:
None

roadway_info_alert_data

This data flow is sent to the Manage Traffic function to provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be displayed on dynamic message signs (DMS) or advised with the use of highway advisory radio (HAR). It consists of the following data items each of which is defined in its own DDE:

wide_area_alert_notification_for_traffic.

Additional Sizing Assumptions:
None

roadway_info_operator_input

This data flow is used within the Manage Traffic function and contains Highway Advisory Radio (HAR) data and Dynamic Message Sign (DMS) data from traffic operations personnel. It consists of the following data items each of which is defined in its own DDE:

har_data
+ dms_data
+ dms_control_data.

Additional Sizing Assumptions:
None

roadway_info_operator_status

This data flow is used within the Manage Traffic function to report to the traffic operations personnel the status of Highway Advisory Radios (HARs) and Dynamic Message Sign status for DMS operating at the roadside in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

dms_status
+ roadway_information_incident_updates
+ har_status.

Additional Sizing Assumptions:
None

roadway_information_data

This data flow is used within the Manage Traffic function and contains Highway Advisory Radio (HAR) data and Dynamic Message Sign (DMS) data. It consists of the following data items each of which is defined in its own DDE:

har_data
+ dms_data
+ dms_control_data.

Additional Sizing Assumptions:
None

roadway_information_evacuation_data

This flow contains information regarding the evacuation for distribution to the roadway. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule.

Additional Sizing Assumptions:
None

roadway_information_incident_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 such as dynamic message signs (DMS) or with the use of highway advisory radio (HAR). 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}.

Additional Sizing Assumptions:
SIZE=list_size+DMS_SIGNS{indicator_identity+dms_advisory_text};

roadway_information_status

This data flow contains the Highway Advisory Radio status for HARs and Dynamic Message Sign status for DMS operating at the roadside in the geographic and/or jurisdictional area(s) served by the function. It consists of the following data items each of which is defined in its own DDE:

dms_status
+ roadway_information_incident_updates
+ har_status.

Additional Sizing Assumptions:
None

roadway_m_and_c_device_data_to_traffic

This DFD flow represents the data flows from Manage Roadway M&C Activities to Provide Device Control and includes roadway device status and roadway maintenance information to be displayed. It consists of the following items each of which is defined in its own DDE:

field_equip_maint_status
+ dms_auto_treat_data_from_maint
+ dms_auto_treat_data_from_roadway
+ t_other_rw_env_sensor_control_by_auto_treat_device
+ t_other_rw_dms_auto_treat_data_from_roadway.

Additional Sizing Assumptions:
None

roadway_m_and_c_to_traffic

This DFD flow represents the data flows from Manage Roadway M&C Activities to Provide Traffic Surveillance and includes information about roadway maintenance activities and sensor control. It consists of the following items each of which is defined in its own DDE:

roadway_maint_status_for_traffic
+ asset_restrictions_for_info_provider
+ roadway_maint_status_for_info_provider
+ env_sensor_control_by_auto_treat_device
+ infrastructure_sensor_control_from_m_and_c
+ m_and_c_work_plans_for_info_provider
+ asset_restrictions_for_traffic.

Additional Sizing Assumptions:
None

roadway_maint_action_req_from_emerg

This data flow is sent by the Manage Emergency Services function to the Manage Maintenance and Construction function and contains a request for action. This includes a request for hazard removal, field equipment repair, and other roadway maintenance. .

Additional Sizing Assumptions:
SIZE=8;

roadway_maint_action_req_from_traffic

This data flow is sent by the Manage Traffic function to the Manage Maintenance and Construction function and contains a request for action. This includes a request for hazard removal, field equipment repair, and other roadway maintenance. .

Additional Sizing Assumptions:
SIZE=8;

roadway_maint_plan

This data flow consists of the selected roadway maintenance plan, including the type of activity to be performed (field equipment repair, grass-cutting, etc.), schedule, etc. and is provided to assist the maintenance and construction activities scheduling function. .

Additional Sizing Assumptions:
SIZE=128;

roadway_maint_status_for_emerg

This data flow is sent from the Manage Maintenance and Construction function to the Manage Emergency Services function and contains information summarizing the current roadway maintenance activities. This also includes maintenance fleet operations affecting the road network such as winter maintenance (snow plow schedules and status). The data flow consists of the following data item which is defined in its own DDE:

current_roadway_maintenance_status.

Additional Sizing Assumptions:
None

roadway_maint_status_for_info_provider

This data flow is sent from the Manage Maintenance and Construction function to the Provide Driver and Traveler Services function and contains information summarizing the current roadway maintenance activities. This also includes maintenance fleet operations affecting the road network such as winter maintenance (snow plow schedules and status). The data flow consists of the following data item which is defined in its own DDE:

current_roadway_maintenance_status.

Additional Sizing Assumptions:
None

roadway_maint_status_for_traffic

This data flow is sent from the Manage Maintenance and Construction function to the Manage Traffic function and contains information summarizing the current roadway maintenance activities. This also includes maintenance fleet operations affecting the road network such as winter maintenance (snow plow schedules and status). The data flow consists of the following data item which is defined in its own DDE:

current_roadway_maintenance_status.

Additional Sizing Assumptions:
None

roadway_maint_status_for_transit

This data flow is sent from the Manage Maintenance and Construction function to the Manage Transit function and contains information summarizing the current roadway maintenance activities. This also includes maintenance fleet operations affecting the road network such as winter maintenance (snow plow schedules and status). The data flow consists of the following data item which is defined in its own DDE:

current_roadway_maintenance_status.

Additional Sizing Assumptions:
None

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. .
Additional Sizing Assumptions:
SIZE = 128;

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.

Additional Sizing Assumptions:
SIZE=link_list+LINKS{link_traffic_conditions};

roadway_treatment_system_control

This data flow is used within the Manage Maintenance and Construction function and contains control information to remotely control automated field devices along the roadway that treat the road surface (anti-icing, de-icing, etc.) and the environmental sensors that indicate when activation of those devices is required. The data flow consists of the following data items each of which is defined in its own DDE:

auto_treatment_device_control
+ env_sensor_control_by_roadway_treatment_device.

Additional Sizing Assumptions:
None

roadway_treatment_system_status

This data flow contains the operational status of automated treatment devices located at the roadway, including fault information and records of equipment activation. By monitoring this data flow, the receiving processes can assess the health and current status of field equipment and track the occurrences of automated treatment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status
+ auto_treatment_activation_data}.

Additional Sizing Assumptions:
None

route

This data flow is used within the Provide Driver and Traveler Services function and contains details of a route. This will have been produced to fit the origin, destination, preferences and constraints requirements provided by a traveler through the trip request data. The route segment(s) will be in sets, one for a primary route (the nearest fit to the traveler's requirements), plus one or more alternates that may give a better modal split, or improved journey time, etc. There may be one or many route segments depending on the length of the route. The data flow consists of the following items each of which is defined in its own DDE:

route_start_time
+ route_statistics
+ route_cost
+ route_list
+ route_segment_number{route_segment}.

Additional Sizing Assumptions:
SIZE=route_start_time+route_statistics+route_cost+route_list+NUM_SEGS{route_segment};

route_cost

This data item is used within the Provide Driver and Traveler Services function and contains the cost of using a particular route. This is made up of some or all of such things as tolls, fares, port charges, plus the cost of commercial vehicle credential filing and tax payments. .

Additional Sizing Assumptions:
SIZE=3;

route_data

This data flow is used to transfer data between the Provide Driver and Traveler Services function and the Manage Traffic function. It contains a wide variety of data covering road network (including parking lot information) use by guided vehicles and requests for current traffic data which can be presented to travelers, as well as a traveler profile for subscription of data. The data flow consists of the following data items each of which is defined in its own DDE:

current_other_routes_use
+ current_road_network_use
+ current_transit_routes_use
+ logged_special_vehicle_route
+ parking_lot_static_information_request_by_isp
+ parking_lot_dynamic_information_request_by_isp
+ special_vehicle_priority_routing
+ traffic_data_advisory_request
+ traffic_data_guidance_request
+ traffic_data_kiosk_request
+ traffic_data_personal_request
+ traffic_data_ridesharing_request
+ traffic_data_511_request
+ traveler_traffic_profile.

Additional Sizing Assumptions:
None

route_guidance_data_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about 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}.

Additional Sizing Assumptions:
SIZE=list_size+ITS_GUIDED_VEHS{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 traveler guidance. The data is for internal use within the function and identifies the route when the driver or traveler subsequently accepts it for use. .

Additional Sizing Assumptions:
SIZE=2;

route_list

This data flow contains a list of the number of route segments in each route that is being provided to a traveler. The primary route will be that which most closely fits the traveler's requirements, while the others will be alternates that may give such things as improved journey time, shorter distance, lower cost, different modal split, etc. The data flow consists of the following data item which is defined in its own DDE:

route_segment_number.

Additional Sizing Assumptions:
SIZE=4{route_segment_number};

route_monitoring_parameters

This data flow contains parameters against which a vehicle's route is monitored. The parameters are used to setup acceptable route deviation limits, which can be influenced by the type of vehicle (i.e. HAZMAT) and its current location (i.e. urban vs. rural). .

Additional Sizing Assumptions:
SIZE=8;

route_point

This data flow is used within the Provide Driver and Traveler Services function. It defines a point that may be on the route that is provided in response to a trip request, or it may be part of the trip specification produced by the traveler as the trip request. In either case it may be the origin, destination, or an intermediate point which the traveler wishes to pass through, or where the trip planning facility has decided that it is necessary to change modes. .

Additional Sizing Assumptions:
SIZE=16;

route_reports

This data flow is used with the Provide Driver and Traveler Services function and contains a snap shot of the current usage travelers are making of roads and other (non-transit) 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.

Additional Sizing Assumptions:
None

route_restrictions_for_isp

This data flow contains information about road segments and areas (surrounded by road segments) that do not allow the transport of security sensitive hazmat cargoes or may indicate other restrictions (such as height or weight limits). These restrictions are intended to be used by ISPs in preparing routes for commercial vehicles. The data flow consists of the following data item which is defined in its own DDE:

hazmat_route_restrictions
+ current_asset_restrictions.

Additional Sizing Assumptions:
None

route_segment

This data flow is used within the Provide Driver and Traveler Services function and forms the basic building block for a route. It consists of the following items of data each of which is defined in its own DDE:

route_segment_data
+ route_segment_identity
+ route_segment_mode.

Additional Sizing Assumptions:
None

route_segment_commercial_details

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Commercial Vehicles function. It contains data about each of the route segments that have been included in a commercial vehicle route. The data flow consists of the following data items each of which is defined in its own DDE:

route_segment_estimated_condition
+ route_segment_predicted_weather
+ route_segment_end_point
+ route_segment_estimated_travel_time
+ route_segment_start_point.

Additional Sizing Assumptions:
None

route_segment_data

This data flow is used within the Provide Driver and Traveler Services function and contains information about a route segment. It consists of the following items of data each of which is defined in its own DDE:

route_segment_estimated_condition
+ route_segment_predicted_weather
+ route_segment_end_point
+ route_segment_start_point
+ route_segment_description
+ route_segment_estimated_arrival_time
+ route_segment_estimated_travel_time
+ route_segment_report_position_points.

Additional Sizing Assumptions:
None

route_segment_description

This data flow is used within the Provide Driver and Traveler Services function and contains a description of the physical details for the entire route segment. This data is used to provide information from which guidance can be produced in a form which is understood by the driver, e.g. lane selection, right/left turns, etc. .

Additional Sizing Assumptions:
SIZE=64;

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}.

Additional Sizing Assumptions:
SIZE=list_size+ROADWAY_SEGS{route_segment_stored_details};

route_segment_details_updated

this data flow is used within the Provide Driver and Traveler Services function to indicate that the store of route segment details has been updated. .

Additional Sizing Assumptions:
SIZE=1;

route_segment_downstream_identity

This data flow provides the identity of the route segment that is immediately downstream of the route segment with which the data flow is associated. This may be another route segment of the same type (highway or road), or of the alternative type (road or highway) where there is an interface to the other network. The data flow consists of the following data item which is defined in its own DDE:

route_segment_identity.

Additional Sizing Assumptions:
None

route_segment_end_point

This data flow is used within the Provide Driver and Traveler Services function and the Manage Traffic function. It contains the location of the end of a route segment and consists of the following data item which is defined in its own DDE:

location_identity.

Additional Sizing Assumptions:
None

route_segment_estimated_arrival_time

This data flow contains the estimated time at which the route segment end point will be reached. .

Additional Sizing Assumptions:
SIZE=5;

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. .

Additional Sizing Assumptions:
SIZE=3;

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. .

Additional Sizing Assumptions:
SIZE=2;

route_segment_guided_travelers

This data flow contains the number of travelers being guided along a route segment in one minute of real time. This data only applies to non-vehicle route segments and those not provided by transit services. The travelers may not actually be on the segment at the time the data is used, but will have it included in their current personal guidance data. .

Additional Sizing Assumptions:
SIZE=2;

route_segment_guided_vehicles

This data flow contains the number of vehicles being guided along a route segment in one minute of real time. The vehicles may not actually be on the segment at the time the data is used, but will have it included in their current route guidance data. This data flow will only apply to those route segments that are used by road vehicles other than transit vehicles. .

Additional Sizing Assumptions:
SIZE=2;

route_segment_identity

This data flow contains the identity number of a route segment. A link may not be the same physical entity as a surface street or highway link (defined elsewhere), but in some cases they could be the same. The data flow consists of the following data items each of which is defined in its own DDE:

unit_number
+ route_segment_type
+ location_identity.

Additional Sizing Assumptions:
None

route_segment_incident_data

This data flow is used within the Provide Driver and Traveler Services function. It contains data about a predicted incident on a route segment. The data is provided by the Manage Incidents facility in the Manage Traffic function. The data flow consists of the following data items each of which is defined in its own DDE:

incident_type
+ incident_severity
+ incident_description
+ incident_traffic_impact.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=2;

route_segment_journey_time_from_tolls

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and traveler Services function. It contains the smoothed average vehicle journey times for the route segment between two toll collection points, obtained from the passing times of those vehicles equipped for electronic toll collection. .

Additional Sizing Assumptions:
SIZE=2;

route_segment_mode

This data flow contains the mode that has been selected for use within the route segment. The choice of mode is made as part of the trip planning process using one of those listed in the 'modes' data flow. Only one mode can be used in any single route segment. .

Additional Sizing Assumptions:
SIZE=3;

route_segment_number

This data flow is used within the Provide Driver and Traveler Services function and contains the number of segments in a route that is being provided in response to a trip request from a traveler. .

Additional Sizing Assumptions:
SIZE=1;

route_segment_occupancy_predictions

This data flow contains output from the predictive model process showing predictions of the occupancy for route segments on the road and highway network served by the Manage Traffic function. This occupancy is represents a range from no vehicles present to the situation in which vehicles are not moving. .

Additional Sizing Assumptions:
SIZE=1;

route_segment_pollution_data

This data flow is used within the Provide Driver and Traveler Services function. It contains data about the pollution levels that are present in the geographic area which is occupied by the route segment. This data will have been obtained from sensors that are deployed and monitored by the Manage Emissions facility within the Manage Traffic function. The data flow consists of the following data items each of which is defined in its own DDE:

current_ozone_pollution
+ current_nitrogen_oxides_pollution
+ current_sulfur_dioxide_pollution
+ current_hydrocarbon_pollution
+ current_carbon_monoxide_pollution
+ current_particulate_pollution
+ current_roadside_pollution_location.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=3;

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. .

Additional Sizing Assumptions:
SIZE=2;

route_segment_report_position_points

This data flow is used within the Provide Driver and Traveler Services function and contains a list of any points other than those at the route segment start and end where the vehicle's position is to be reported. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{route_segment_way_point}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_SEG_WPS{route_segment_way_point};

route_segment_speed_predictions

This data flow is used within the Manage Traffic function and is also sent by that function to the Manage Transit and Provide Driver and Traveler Services function. It contains output from the predictive model process showing predictions of the vehicle speed for route segments on the road and highway network served by the Manage Traffic function.

vehicle_speed.

Additional Sizing Assumptions:

None

route_segment_start_point

This data flow is used within the Provide Driver and Traveler Services function and the Manage Traffic function. It contains the location of the start of a route segment and consists of the following data item which is defined in its own DDE:

location_identity.

Additional Sizing Assumptions:
None

route_segment_stored_details

This data flow is used within the Provide Driver and Traveler Services function. It contains data for each 'route_segment' such as the current journey time, either obtained from position reports input by probe vehicles, i.e. those which are reporting their current position regardless of whether they are guided or not, or calculated from data produced as part of the adaptive control strategy process, data from the predictive model, and pollution data. The data flow consists of the following data items each of which is defined in its own DDE:

route_segment_identity
+ route_segment_incident_data
+ route_segment_journey_time
+ route_segment_occupancy_predictions
+ route_segment_pollution_data
+ route_segment_queue_delay_predictions
+ route_segment_use_prediction
+ route_segment_volume_delay_predictions.

Additional Sizing Assumptions:
None

route_segment_total_number

This data flow is used define the total number of route segments in the road (surface street) and highway network served by the Manage Traffic function. This may be different from that served by the Provide Driver and Traveler Services function, and in this instance is used to define the number of route segments for which probe vehicle data is being provided to the Manage Traffic function, or the total number of route segments used by non-vehicle modes (walking, cycling, etc.) for which journey times are available. .

Additional Sizing Assumptions:
SIZE=2;

route_segment_type

This data flow contains the definition of the type of route segment which will depend on the types of use it will support. The data flow may describe but not be limited to messages such as any type of vehicle, commercial vehicles only, transit vehicles only, commercial and transit vehicles, private cars and vans only, bicycles only, all pedestrians, no vehicles, disabled pedestrians, road route segment, and highway route segment. .

Additional Sizing Assumptions:
SIZE=3;

route_segment_upstream_identity

This data flow provides the identity of the route segment that is immediately upstream of the route segment with which the data flow is associated. This may be another route segment of the same type (road or highway), or of the alternative type (highway or road) where there is an interface to the other network. The data flow consists of the following data item which is defined in its own DDE:

route_segment_identity.

Additional Sizing Assumptions:
None

route_segment_use_prediction

This data flow is used within the Provide Driver and Traveler Services function. It contains data about the number of guided vehicles that will be using a route segment over a set of time periods. The data flow consists of the following data items each of which is defined in its own DDE:

time_period{route_segment_guided_vehicles}.

Additional Sizing Assumptions:
SIZE=TIME_PERIOD{route_segment_guided_vehicles};

route_segment_volume_delay_predictions

This data flow contains output from the predictive model process showing predictions of the delay(s) due to traffic volume for route segments on the road and highway network served by the Manage Traffic function. This delay is the additional time that a vehicle will take to move from the start of a route segment to its end, above that which it would need in totally free flow conditions. .

Additional Sizing Assumptions:
SIZE=2;

route_segment_way_point

This data flow is used within the Provide Driver and Traveler Services function and contains the location of a point part way along a route segment at which a vehicle's position is to be reported. It consists of the following data item which is defined in its own DDE:

location_identity.

Additional Sizing Assumptions:
None

route_selection_parameters

This data store is used within the Provide Driver and traveler Services function and contains parameters used to determine the way in which route are selected for both traveler trip plans and for on-line vehicle guidance. The parameters govern the weighting that is to be given to the preferences and constraints provided as part of the input from the traveler or driver, and any particular streets, highways, bridges, etc. that are to be avoided. .

Additional Sizing Assumptions:
SIZE=1024000;

route_start_time

This data flow is used within the Provide Driver and Traveler Services function. It contains the date and time at which a route will start taken from the time specified in the request for the route. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time.

Additional Sizing Assumptions:
None

route_statistics

This data flow is used within the Provide Driver and Traveler Services function and contains the overall predicted statistics associated with a route which may assist the traveler in making a final route selection. The statistics will include such things as itinerary, estimated net travel time, time of arrival, total distance, anticipated delays/congestion, etc. .

Additional Sizing Assumptions:
SIZE=25;

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. .

Additional Sizing Assumptions:
SIZE=1;

routes_for_vehicles_data

This data store is used within the Provide Driver and Traveler Services function. It contains details of all the vehicle routes which are currently being used by vehicles using dynamic guidance. The data store consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{vehicle_guidance_stored_data}.

Additional Sizing Assumptions:
SIZE=list_size+ITS_GUIDED_VEHS{vehicle_guidance_stored_data};

routing_information_for_transit

This data flow contains the list of roadway closures and detours for use by the Manage Transit function during a disaster or other emergency. Transit Management can use this information to update schedules, routes, etc., to help support the disaster response and recovery efforts. .

Additional Sizing Assumptions:
SIZE=48;

routing_parameters_for_m_and_c_fleet

This data flow provides a routing parameters for routing a maintenance and construction vehicle, including destination, preferences, constraints, etc. .

Additional Sizing Assumptions:

SIZE=64;

safeguard_info

This data flow is the DMS state which gives warning of activation of the automated safeguard systems, such as blast shields or tunnel exhaust fans, indicating the condition that warranted the device's activation, or that the safeguard systems are activated. .

Additional Sizing Assumptions:
SIZE=8;

safeguard_system_activation_request_from_emerg

This data flow is used within the Manage Emergency Services function to request activation of a safeguard system to support emergency response. These safeguard systems include equipment used to mitigate the impact of incidents on transportation infrastructure, such as blast shields, exhaust systems, etc.). It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ safeguard_system_control_request}.

Additional Sizing Assumptions:
None

safeguard_system_activation_request_from_operator

This data flow is used within the Manage Emergency Services function to request activation of a safeguard system by the traffic operations personnel. These safeguard systems include equipment used to mitigate the impact of incidents on transportation infrastructure, such as blast shields, exhaust systems, etc.). It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ safeguard_system_control_request}.

Additional Sizing Assumptions:
None

safeguard_system_control

This data flow provides configuration and control commands for safeguard systems that represent equipment used to mitigate the impact of incidents on transportation infrastructure (e.g., blast shields, exhaust systems, etc.). It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ safeguard_system_control_data}.

Additional Sizing Assumptions:
None

safeguard_system_control_data

This data flow provides control commands for a single safeguard system. These commands can be used to configure the system and to define the conditions under which the safeguard system is activated. .

Additional Sizing Assumptions:
SIZE=32;

safeguard_system_control_request

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

Additional Sizing Assumptions:
SIZE=32;

safeguard_system_data_for_archive

This data flow contains the operational status of safeguard systems (equipment used to mitigate the impact of incidents on transportation infrastructure, such as blast shields, exhaust systems, etc.). This flow is used to archive occurrences of safeguard system activation. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

safeguard_system_device_status

This data flow is used within the Manage Traffic function to report the status of the automated safeguard systems, such as blast shields and tunnel exhaust systems. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + 1{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

safeguard_system_equip_status_for_m_and_c

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

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

safeguard_system_status

This data flow is used within the Manage Traffic function to report the status of a safeguard system (equipment used to mitigate the impact of incidents on transportation infrastructure, such as blast shields, exhaust systems, etc.).

By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

safeguard_system_status_for_detours

This data flow is sent from the Manage Emergency Services function to the Manage Traffic function to report to another process the operational status of a safeguard system (equipment used to mitigate the impact of incidents on transportation infrastructure, such as blast shields, exhaust systems, etc.). By monitoring this data flow and thereby knowing which systems have been activated, the receiving process can better coordinate traffic detours. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

safeguard_system_status_to_emerg

This data flow is used within the Manage Emergency Services function to report to another process the operational status of a safeguard system (equipment used to mitigate the impact of incidents on transportation infrastructure, such as blast shields, exhaust systems, etc.). By monitoring this data flow and thereby knowing which systems have been activated, the receiving process can better coordinate an emergency response. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

safeguard_system_status_to_operator

This data flow is used within the Manage Emergency Services function to report to the traffic operations personnel the status of a safeguard system (equipment used to mitigate the impact of incidents on transportation infrastructure, such as blast shields, exhaust systems, etc.). By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

safety_data

This data flow is used within the Provide Vehicle Monitoring and Control function and contains the status of the driver in terms of their ability to control the vehicle, the status of the vehicle in terms of its continued ability to operate in a safe manner, data about the road conditions, e.g. ice, fog, rain, snow, etc.; as well as similar data concerning the actual movement and attitude of the vehicle. This data flow consists of the following data items each of which is defined in its own DDE:

driver_safety_status
+ vehicle_safety_status
+ environment_sensor_output
+ vehicle_motion_data
+ vehicle_attitude_data.

Additional Sizing Assumptions:
None

safety_data_for_fleet_mgmt

This data flow contains data about vehicle safety, including the status of the driver in terms of their ability to control the vehicle, and the status of the vehicle, in terms of its continued ability to operate in a safe manner. It consists of the following data item which is defined in its own DDE:

safety_data_for_mcv
+ vehicle_id_for_mcv
+ date
+ time.

Additional Sizing Assumptions:
None

safety_data_for_mcv

This data flow contains data about vehicle safety, including the status of the driver in terms of their ability to control the vehicle, and the status of the vehicle, in terms of its continued ability to operate in a safe manner. It consists of the following data items each of which is defined in its own DDE:

driver_safety_status
+ vehicle_motion_data
+ vehicle_attitude_data
+ vehicle_proximity_data
+ vehicle_safety_status.

Additional Sizing Assumptions:
None

safety_state_for_driver

This data flow is used within the Provide Vehicle Monitoring and Control function and the Provide Driver and Traveler Services function. It contains an indication of the level of importance that must be attached to an associated safety warning. The warning may be related to the condition of the driver, the vehicle, or the road ahead of the vehicle. The data item is so that it can be used to define the seriousness of the safety condition. The character may describe but not be limited to defining advisory, e.g. windshield washer fluid level low, fairly serious, e.g. road ahead has severe bends, very serious, e.g. alternator not working, vehicle running on battery, critical, e.g. engine temperature too high, engine about to stop. The descriptive character is for use by the message output process in determining the level of priority that the message should have over other messages that are being output to the driver. .

Additional Sizing Assumptions:
SIZE=1;

safety_warning_for_driver_condition

This data flow is used within the Provide Vehicle Monitoring and Control function and the Provide Driver and Traveler Services function. It contains a warning to the driver that current behavior patterns indicate to systems on-board the vehicle that he/she is incapable of maintaining proper control of the vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

safety_state_for_driver
+ safety_advisory_message.

Additional Sizing Assumptions:
None

safety_warning_for_road_condition

This data flow is used within the Provide Vehicle Monitoring and Control function and the Provide Driver and Traveler Services function. It contains a warning to the driver that the road conditions ahead of the vehicle are unsafe, i.e. the vehicle may be in danger of suffering damage if it continues. The data flow consists of the following data items each of which is defined in its own DDE:

safety_state_for_driver
+ safety_advisory_message.

Additional Sizing Assumptions:
None

safety_warning_for_vehicle_condition

This data flow is used within the Provide Vehicle Monitoring and Control function and the Provide Driver and Traveler Services function. It contains a warning to the driver that there is something wrong the vehicle, the nature of which is given in the accompanying text string. The data flow consists of the following data items each of which is defined in its own DDE:

safety_state_for_driver
+ safety_advisory_message.

Additional Sizing Assumptions:
None

safety_warnings

This data flow is sent from the Provide Vehicle Monitoring and Control function to the Provide Driver and Traveler Services function. It contains safety warnings for drivers about the current operation of the vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

safety_warning_for_driver_condition
+ safety_warning_for_vehicle_condition
+ safety_warning_for_road_condition.

Additional Sizing Assumptions:
None

scheduled_work_plan

This data flow is used within the Manage Maintenance and Construction function when managing resource needs and contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans.

Additional Sizing Assumptions:
None

scheduled_work_plan_for_personnel

This data flow is used within the Manage Maintenance and Construction function and contains information for use by center personnel about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans.

Additional Sizing Assumptions:
None

secure_area_audio

This data flow is used within the Manage Emergency Services function and contains the direct audio output of surveillance equipment in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ surveillance_device_type_identity
+ secure_audio.

Additional Sizing Assumptions:
None

secure_area_audio_control

This data flow is used within the Manage Emergency Services function and contains control parameters for a specific audio system located in a secure area.

list_size + list_size{station_id
+ surveillance_device_type_identity
+ audio_control_data}.

Additional Sizing Assumptions:
None

secure_area_audio_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the direct audio output of surveillance equipment in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ surveillance_device_type_identity
+ secure_audio.

Additional Sizing Assumptions:
None

secure_area_audio_status

This data flow contains status information from audio systems located in secure areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc. as well as areas typically away from travelers such as tunnels, bridges, and roadway infrastructure. This data flow contains an indication that a fault has been found with the collection of audio data by the device and is used by the receiving process to monitor the health and current status of field equipment. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ surveillance_device_type_identity
+ audio_fault_data}.

Additional Sizing Assumptions:
None

secure_area_field_proc_parameters

This data flow is used within the Manage Emergency Services function and contains the information required to control the sensor and surveillance data processing occurring in the field. This data is collected from secure areas typically away from travelers (bridges, tunnels, roadway infrastructure, etc.). The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_surveillance_field_proc_parameters
+ secure_area_sensor_field_proc_parameters.

Additional Sizing Assumptions:
None

secure_area_images

This data flow is used within the Manage Emergency Services function and contains the direct high-resolution digitized image output of surveillance equipment in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ surveillance_device_type_identity
+ secure_video_image.

Additional Sizing Assumptions:
None

secure_area_images_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the direct high-resolution digitized image output of surveillance equipment in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ surveillance_device_type_identity
+ secure_video_image.

Additional Sizing Assumptions:
None

secure_area_sensor_control

This data flow contains control parameters for sensors located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. It consists of the following data items each of which is defined in its own DDE:

infrastructure_integrity_sensor_control
+ threat_sensor_control
+ object_detection_sensor_control
+ intrusion_motion_sensor_control.

Additional Sizing Assumptions:
None

secure_area_sensor_control_from_operator

This data flow contains control parameters for threat sensors, object detection sensors, intrusion and motion detection sensors, and infrastructure integrity sensors located in secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) and those typically away from travelers (bridges, tunnels, roadway infrastructure, etc.). It consists of the following data items each of which is defined in its own DDE:

threat_sensor_control
+ object_detection_sensor_control
+ intrusion_motion_sensor_control
+ infrastructure_integrity_sensor_control
+ traveler_threat_sensor_control
+ traveler_object_detection_sensor_control
+ traveler_intrusion_motion_sensor_control
+ vehicle_threat_sensor_control
+ vehicle_object_detection_sensor_control.

Additional Sizing Assumptions:
None

secure_area_sensor_data

This data flow contains the direct output of sensors as well as the processed output of sensors in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. It consists of the following data items each of which is defined in its own DDE:

infrastructure_integrity_sensor_data
+ field_processed_infrastructure_integrity_sensor_data
+ threat_sensor_data
+ field_processed_threat_sensor_data
+ object_detection_sensor_data
+ field_processed_object_detection_sensor_data
+ intrusion_motion_sensor_data
+ field_processed_intrusion_motion_sensor_data.

Additional Sizing Assumptions:
None

secure_area_sensor_data_to_operator

This data flow is used within the Manage Emergency Services function and is used to provide sensor data from secure areas for display to emergency personnel, including raw data from threat sensors, objection detection sensors, intrusion and motion detection sensors, and infrastructure integrity sensors, as well as data produced by processing that sensor data. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ sensor_identity
+ infrastructure_integrity_sensor_data_collected
+ infrastructure_integrity_sensor_processed_data
+ threat_sensor_data_collected
+ threat_sensor_processed_data
+ object_sensor_data_collected
+ object_sensor_processed_data
+ intrusion_motion_sensor_data_collected
+ intrusion_motion_sensor_processed_data}.

Additional Sizing Assumptions:
None

secure_area_sensor_field_proc_parameters

This data flow contains parameters to define how the sensor data collected from secure areas (typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc.) is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing in the field and include threat sensors, intrusion and motion detection sensors, object detection sensors, and infrastructure integrity sensors. .

Additional Sizing Assumptions:
SIZE=32;

secure_area_sensor_proc_parameters_from_operator

This data flow contains parameters to define how the sensor data collected from secure areas is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing at both the center and field and include threat sensors, intrusion and motion detection sensors, object detection sensors, and infrastructure integrity sensors. .

Additional Sizing Assumptions:

SIZE=32;

secure_area_sensor_status

This data flow contains the status of sensors located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. This status includes of the configuration of the device and an indication of any device faults. It consists of the following data items each of which is defined in its own DDE:

infrastructure_integrity_sensor_status
+ threat_sensor_status
+ object_detection_sensor_status
+ intrusion_motion_sensor_status.

Additional Sizing Assumptions:
None

secure_area_sensor_status_to_operator

This data flow contains the status of threat sensors, objection detection sensors, intrusion and motion detection sensors, and infrastructure integrity sensors located in secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) and those typically away from travelers (bridges, tunnels, roadway infrastructure, etc.). This status includes of the configuration of the device and an indication of any device faults. It consists of the following data items each of which is defined in its own DDE:

threat_sensor_status
+ object_detection_sensor_status
+ intrusion_motion_sensor_status
+ infrastructure_integrity_sensor_status
+ traveler_threat_sensor_status
+ traveler_object_detection_sensor_status
+ traveler_intrusion_motion_sensor_status
+ vehicle_threat_sensor_status
+ vehicle_object_detection_sensor_status.

Additional Sizing Assumptions:
None

secure_area_sensor_threat_data

This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from sensor systems in secure areas typically away from travelers, such as tunnels, bridges, roadway infrastructure, etc. This data is collected from threat sensors, object detection sensors, intrusion and motion sensors, and infrastructure integrity sensors, and could include an alarm indicating that a threshold has been met or a data pattern recognized. The data flow consists of the following data items each of which is defined in its own DDE:

sensor_threat_data
+ location_identity.

Additional Sizing Assumptions:
None

secure_area_sensor_threat_information_to_operator

This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from sensor systems in secure areas, including those frequented by

travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, on-board transit vehicles, etc.) and those typically away from travelers (tunnels, bridges, roadway infrastructure). This data is collected from threat sensors, object detection sensors, intrusion and motion sensors, and infrastructure integrity monitoring sensors. This data could include an alarm indicating that a threshold has been met or a data pattern recognized, and could be a result of a single sensor or correlation of data from multiple sensors and sensor types. The data flow consists of the following data items each of which is defined in its own DDE:

sensor_threat_data
+ geographical_area.

Additional Sizing Assumptions:
None

secure_area_surveillance

This data flow is used within the Manage Emergency Services function and contains the direct video and audio output of surveillance equipment as well as the processed output of that equipment in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_images
+ field_processed_secure_area_images
+ secure_area_audio
+ field_processed_secure_area_audio.

Additional Sizing Assumptions:
None

secure_area_surveillance_control

This data flow is used within the Manage Emergency Services function and contains control parameters for closed circuit television (cctv) and audio systems located in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_video_control
+ secure_area_audio_control.

Additional Sizing Assumptions:
None

secure_area_surveillance_control_from_operator

This data flow is used within the Manage Emergency Services function and contains control parameters for closed circuit television (cctv) and audio systems located in secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) and those typically away from travelers (bridges, tunnels, and other roadway infrastructure). The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_surveillance_control
+ traveler_secure_area_surveillance_control
+ vehicle_secure_area_surveillance_control.

Additional Sizing Assumptions:
None

secure_area_surveillance_data_to_operator

This data flow is used within the Manage Emergency Services function and is used to provide surveillance data from secure areas to emergency system personnel, including high resolution video images, audio, and data produced by processing those images and audio. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image
+ secure_audio
+ secure_area_images
+ secure_video_image_data
+ secure_audio_data}.

Additional Sizing Assumptions:
None

secure_area_surveillance_field_proc_parameters

This data flow contains parameters to define how the surveillance data collected from secure areas (typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc.) is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing in the field. .

Additional Sizing Assumptions:
SIZE=32;

secure_area_surveillance_proc_parameters_from_operator

This data flow contains parameters to define how the surveillance data collected from secure areas is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing at both the center and field. .

Additional Sizing Assumptions:
SIZE=32;

secure_area_surveillance_status

This data flow is used within the Manage Emergency Services function and contains status information from closed circuit television (cctv) and audio systems located in secure areas typically away from travelers, such as bridges, tunnels, and other infrastructure. This data flow contains an indication that a fault has been found with the collection of video or audio data by the device. The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_video_status
+ secure_area_audio_status.

Additional Sizing Assumptions:
None

secure_area_surveillance_status_to_operator

This data flow is used within the Manage Emergency Services function and contains status information from closed circuit television (cctv) and audio systems located in secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) and those typically away from travelers (bridges, tunnels, and other roadway infrastructure). This data flow contains an indication that a fault has been found with the collection of video or audio data by the device. The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_surveillance_status
+ traveler_secure_area_surveillance_status
+ vehicle_secure_area_surveillance_status.

Additional Sizing Assumptions:
None

secure_area_surveillance_threat_data

This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from surveillance systems in secure areas typically away from travelers, such as tunnels, bridges, roadway infrastructure, etc. This data could include an alarm indicating that a threshold has been met or an audio or video pattern recognized. The data flow consists of the following data items each of which is defined in its own DDE:

surveillance_threat_data
+ location_identity.

Additional Sizing Assumptions:
None

secure_area_surveillance_threat_information_to_operator

This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from surveillance systems in secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, on-board transit vehicles, etc.) and those typically away from travelers (tunnels, bridges, roadway infrastructure). This data could include an alarm indicating that a threshold has been met or an audio or video pattern recognized, and could be a result of a single surveillance system or correlation of data from multiple surveillance systems. The data flow consists of the following data items each of which is defined in its own DDE:

surveillance_threat_data
+ geographical_area.

Additional Sizing Assumptions:
None

secure_area_threat_data

This data flow contains threat data including threats detected, threshold alarms, and verified threats in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. It consists of the following data items each of which is defined in its own DDE:

secure_area_sensor_threat_data
+ secure_area_surveillance_threat_data.

Additional Sizing Assumptions:
None

secure_area_video_control

This data flow is used within the Manage Emergency Services function and contains control parameters for a specific closed circuit television (cctv) system located in a secure area. These parameters may specify camera pan, tilt, and zoom, plus other picture controls.

list_size + list_size{station_id

+ surveillance_device_type_identity
+ video_control_data}.

Additional Sizing Assumptions:
None

secure_area_video_status

This data flow contains status information from closed circuit television (cctv) systems located in secure areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc. as well as areas typically away from travelers such as tunnels, bridges, and roadway infrastructure. This data flow contains an indication that a fault has been found with the collection of video data by the device and is used by the receiving process to monitor the health and current status of field equipment. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ surveillance_device_type_identity
+ video_fault_data}.

Additional Sizing Assumptions:
None

secure_audio

This data flow contains the direct digitized audio output of surveillance equipment in secure areas. .

Additional Sizing Assumptions:
SIZE=128;

secure_audio_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing audio data from surveillance systems. It is analyzed and used to detect potential threats in secure areas.
.

Additional Sizing Assumptions:
SIZE=256;

secure_sensor_and_surveillance_control

This data flow is used within the Manage Emergency Services function to control sensors and surveillance, including device configuration, processing control, and data collection. The data flow consists of the following data item which is defined in its own DDE:

secure_area_sensor_control
+ secure_area_surveillance_control
+ transit_vehicle_sensor_control
+ vehicle_secure_area_surveillance_control
+ traveler_sensor_control
+ traveler_secure_area_surveillance_control
+ secure_area_field_proc_parameters
+ vehicle_secure_area_field_proc_parameters
+ traveler_secure_area_field_proc_parameters.

Additional Sizing Assumptions:
None

secure_sensor_and_surveillance_data

This data flow is used within the Manage Emergency Services function for sensor and surveillance data, and includes raw data (or images) as well as field-processed data. The data flow consists of the following data item which is defined in its own DDE:

secure_area_sensor_data
+ secure_area_surveillance
+ transit_vehicle_sensor_data
+ transit_vehicle_surveillance
+ traveler_sensor_data
+ traveler_surveillance.

Additional Sizing Assumptions:
None

secure_sensor_and_surveillance_status

This data flow is used within the Manage Emergency Services function to collect sensor and surveillance status, and device equipment status, operational status, etc. The data flow consists of the following data item which is defined in its own DDE:

secure_area_sensor_status
+ secure_area_surveillance_status
+ transit_vehicle_sensor_status
+ vehicle_secure_area_surveillance_status
+ traveler_sensor_status
+ traveler_secure_area_surveillance_status.

Additional Sizing Assumptions:
None

secure_sensor_and_surveillance_threat_data

This data flow contains threat data including threats detected, threshold alarms, and verified threats secure areas and consists of the following data items each of which is defined in its own DDE:

secure_area_threat_data
+ transit_vehicle_threat_data
+ traveler_secure_area_threat_data.

Additional Sizing Assumptions:
None

secure_sensors_transit_vehicle_location

This data flow is used within the Manage Transit function to provide the exact location of the transit vehicle. It contains the transit vehicle location plus its identity. It is used to provide the location of the transit vehicle containing security sensing functions. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location.

Additional Sizing Assumptions:
None

secure_surveillance_transit_vehicle_location

This data flow is used within the Manage Transit function to provide the exact location of the transit vehicle. It contains the transit vehicle location plus its identity. It is used to provide the location of the transit vehicle containing security surveillance functions. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location.

Additional Sizing Assumptions:
None

secure_transit_vehicle_alarm_acknowledge

This data flow confirms that the request for emergency services previously sent by the traveler (including users of the transit system) or transit vehicle operator via a silent or audible alarm on-board a transit vehicle has been received by the Manage Emergency Services function. The information will be sent out as part of the response to an emergency or incident being detected within the network. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

secure_transit_vehicle_alarm_acknowledge_for_transit

This data flow confirms that the request for emergency services previously sent by the traveler (including users of the transit system) or transit vehicle operator via a silent or audible alarm on-board a transit vehicle has been received by the Manage Transit function. The information will be sent out as part of the response to an emergency or incident being detected within the network. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

secure_transit_vehicle_alarm_request

This data flow is sent from the traveler (including users of the transit system) or transit vehicle operator on-board a transit vehicle to the Manage Emergency Services function and includes a silent or audible alarm request for emergency assistance. The data flow contains the following data items each of which is defined in its own DDE:

date
+ time
+ transit_vehicle_operator_personal_emergency_request
+ traveler_personal_emergency_request_for_transit.

Additional Sizing Assumptions:
None

secure_transit_vehicle_alarm_request_for_transit

This data flow is sent from the traveler (including users of the transit system) or transit vehicle operator on-board a transit vehicle to the Manage Transit function and includes a silent or audible alarm request for emergency assistance. The data flow contains the following data items each of which is defined in its own DDE:

date

+ time
+ transit_vehicle_operator_personal_emergency_request
+ traveler_personal_emergency_request_for_transit.

Additional Sizing Assumptions:
None

secure_transit_vehicle_broadcast_message

This data flow contains textual information for travelers on-board a transit vehicle. The information will be sent out as part of the response to an emergency or incident being detected within the network. .

Additional Sizing Assumptions:
SIZE=48;

secure_transit_vehicle_emergency_information

This data flow is used within the Manage Transit function and contains details of emergency requests that have been input on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

secure_transit_vehicle_alarm_request_for_transit
+ transit_vehicle_location.

Additional Sizing Assumptions:
None

secure_transit_vehicle_location

This data flow is used within the Manage Transit function to provide the exact location of the transit vehicle. It contains the transit vehicle location plus its identity. It is used to provide the location of the traveler who has issued a silent alarm from on-board a transit vehicle. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location.

Additional Sizing Assumptions:
None

secure_video_image

This data flow contains a high-resolution digitized image of occurrences in a secure area, including areas frequented by travelers as well as those typically away from travelers. .

Additional Sizing Assumptions:
SIZE=IMAGE_LARGE;

secure_video_image_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing image data from systems such as surveillance closed circuit television (cctv). It is analyzed and used to detect potential threats in secure areas. .

Additional Sizing Assumptions:
SIZE=256;

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. .

Additional Sizing Assumptions:
SIZE=32;

security_data_for_traffic

This data flow is sent from the Manage Emergency Services function to the Manage Traffic function and contains security-related data and control, such as safeguard system activation and device status, and barrier system activation requests from emergency personnel. It also contains threat information and infrastructure integrity information for the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

barrier_system_activation_request_from_emerg
+ t_other_rw_dms_safeguard_activated_from_roadway
+ dms_safeguard_activated_from_roadway
+ dms_safeguard_activated_from_traffic
+ safeguard_system_data_for_archive
+ safeguard_system_status_for_detours
+ safeguard_system_status_to_operator
+ safeguard_system_device_status
+ threat_and_infrastructure_info_for_traffic
+ disaster_and_evacuation_data_to_traffic
+ dre_data_for_incident
+ emergency_route_request.

Additional Sizing Assumptions:
None

security_data_for_transit

This data flow is sent from the Manage Transit function to the Manage Emergency Services function and contains security-related data and control, such as threat information, transit vehicle operator authentication requests, and silent and audible alarms from travelers (users of the transit system) and transit vehicle operators. It also includes disaster plans and evacuation coordination data. It consists of the following data items each of which is defined in its own DDE:

request_transit_operator_authentication
+ transit_vehicle_operator_authentication_status
+ secure_transit_vehicle_alarm_request_for_transit
+ threat_and_infrastructure_info_for_transit
+ disaster_and_evacuation_info_to_transit
+ request_for_emergency_transit_support.

Additional Sizing Assumptions:
None

security_data_from_traffic

This data flow is sent from the Manage Traffic function to the Manage Emergency Services function and contains security-related data and control, such as barrier system status and safeguard system activation requests from the Manage Traffic function. It consists of the following data items each of which is defined in its own DDE:

barrier_system_status_to_emerg
+ safeguard_system_activation_request_from_operator

+ roadway_detours_and_closures_for_em
+ traffic_network_status_for_disaster_and_evacuation
+ incident_data_for_dre
+ emergency_route_response.

Additional Sizing Assumptions:
None

security_data_from_transit

This data flow is sent from the Manage Transit function to the Manage Emergency Services function and contains security-related data and control, such as transit vehicle operator authentications, silent and audible alarm acknowledgments to travelers (users of the transit system) and transit vehicle operators, and control information to remotely disable a transit vehicle. It also includes disaster plans and evacuation coordination data. It consists of the following data items each of which is defined in its own DDE:

remote_transit_vehicle_control
+ secure_transit_vehicle_alarm_acknowledge_for_transit
+ disaster_and_evacuation_info_from_transit
+ transit_info_for_emergency_services.

Additional Sizing Assumptions:
None

security_sensor_equip_status_for_m_and_c

This data flow is sent from the Manage Emergency Services function to the Manage Maintenance and Construction function to report the status of security sensors, including threat sensors (e.g., thermal, acoustic, radiological, chemical), intrusion and motion detection sensors, object detection sensors, and infrastructure integrity sensors. These sensors are located in secure areas frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) or areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment, and arrange for repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

traveler_threat_sensor_status
+ traveler_object_detection_sensor_status
+ traveler_intrusion_motion_sensor_status
+ threat_sensor_status
+ object_detection_sensor_status
+ intrusion_motion_sensor_status
+ infrastructure_integrity_sensor_status
+ vehicle_threat_sensor_status
+ vehicle_object_detection_sensor_status.

Additional Sizing Assumptions:
None

security_surveillance_equip_status_for_m_and_c

This data flow is sent from the Manage Emergency Services function to the Manage Maintenance and Construction function to report the status of security surveillance equipment. These audio and video devices are located in secure areas frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) or areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment, and arrange for repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

traveler_secure_area_surveillance_status
+ secure_area_surveillance_status
+ vehicle_secure_area_surveillance_status.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=64;

select_lane_hold

This data flow is used within the Provide Vehicle Control and Monitoring function and contains an indication that the driver has or has not selected lane holding. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

selected_emergency_strategy

This data flow is used within the Manage Traffic function to specify the type of traffic control strategy to be applied to some or all of the road (surface streets) and highway traffic control units controlled by a TMC. The strategy will be based on the emergency vehicle route provided by the route selection facility in the Provide Driver and Traveler Services function. It will give preemption to the emergency vehicle(s) by ensuring that they are given the proceed indication (green signal) as they approach each individual intersection, pedestrian and ramp meter control unit along the emergency vehicle route. Another feature of the strategy may be the direction of other vehicles to use particular lanes on a surface street or highway so that the emergency vehicle(s) have a lane for their sole use. .

Additional Sizing Assumptions:
SIZE=4;

selected_emergency_vehicle_strategy

This data flow is used within the Manage Traffic function and contains the strategy which has been selected to enable preemption to be given to emergency vehicles through the road (surface street) and highway network controlled by the TMC. It will cover intersection controllers, pedestrian controllers, dynamic message signs (DMS) that control lane use and ramp metering controllers. The strategies for each of these individual types of unit will be sent out as the strategies to their individual control processes. The strategy may be applied to some or all of the units on the roads and highways in the geographic area served by the TMC. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_list

+ ramp_list
+ selected_emergency_strategy.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
SIZE=list_size+HIGHWAY_INDICATORS{indicator_identity}+selected_strategy_type;

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.

Additional Sizing Assumptions:
SIZE=list_size+GRADE_CROSSINGS{crossing_id}+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) .

Additional Sizing Assumptions:
SIZE=1024;

selected_parking_lot_control_strategy

This data flow is used within the Manage Traffic function and contains the strategy which has been selected for implementation at parking lots to control their use. The strategy will be designed to promote or discourage the use of a parking lot by directing vehicles to or away from it through the use of dynamic message signs (DMS). The decision on which strategy to employ will depend upon such things as the overall traffic management strategy, the need to restrict vehicle use because of a number of factors e.g. congestion, pollution, and the desire to encourage travelers to make use of alternative modes of transport by using park and ride (P+R) facilities. The strategy may be applied to some or all of the parking lots in the geographic area served by the TMC. The data flow consists of the following data items each of which is defined in its own DDE:

parking_lot_list
+ selected_parking_lot_strategy_type.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=4;

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.

Additional Sizing Assumptions:
None

selected_ramp_strategy_type

This data flow is used within the Manage Traffic function and contains the strategy which has been selected for implementation by ramp metering equipment. The strategy may typically be one which either permanently opens or closes the ramp, or enables traffic to join the highway under certain conditions. These would be things such as low congestion on the highway, or situations where additional traffic entering the highway will not increase the level of congestion such that free flow conditions break down. An override will be provided to enable the ramp to be opened if closing it will cause unacceptable congestion to the surrounding surface streets. .

Additional Sizing Assumptions:
SIZE=8;

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.

Additional Sizing Assumptions:
SIZE=list_size+ROAD_INDICATORS{indicator_identity}+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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=3;

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.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+HOV_LANES{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
    + vehicle_smart_probe_data_source_location}.

Additional Sizing Assumptions:
SIZE=list_size+VEH_PROBE_SITES{link_identity+vehicle_smart_probe_data_source_identity
    +vehicle_smart_probe_data_source_location};

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}.

Additional Sizing Assumptions:
SIZE=list_size+LINKS{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.

Additional Sizing Assumptions:
None

sensor_configuration_data

This data flow provides control commands for advanced sensors, including video sensing systems. .

Additional Sizing Assumptions:
SIZE=16;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

sensor_data_for_archive

This data flow is used to archive sensor data from secure areas, including raw data from threat sensors, objection detection sensors, intrusion and motion detection sensors, and infrastructure integrity sensors, as well as data produced by processing that sensor data. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ sensor_identity
+ infrastructure_integrity_sensor_data_collected
+ infrastructure_integrity_sensor_processed_data
+ threat_sensor_data_collected
+ threat_sensor_processed_data
+ object_sensor_data_collected
+ object_sensor_processed_data
+ intrusion_motion_sensor_data_collected
+ intrusion_motion_sensor_processed_data}.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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
+ vehicle_detection_data.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

sensor_device_status

This data flow is used to collect the status of an individual sensor at the roadside. This status includes the configuration of the sensor as well as fault indications. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. .

Additional Sizing Assumptions:
SIZE=16;

sensor_fault_data

This data flow is used to show that a sensor has developed a fault or that it is not operating correctly. The fault will have been found by a process that is local to the sensor itself. .

Additional Sizing Assumptions:
SIZE=64;

sensor_fault_data_store

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

traffic_sensor_status
+ traffic_sensor_fault_data
+ environmental_sensor_status.

Additional Sizing Assumptions:
None

sensor_identity

This data flow contains an identifier of an individual sensor or a sensor managed by a sensor station. The identifier is either the actual equipment identifier or a code indicating the type of the sensor (e.g., wind, chemical, temperature, precipitation, traffic flow, etc). .

Additional Sizing Assumptions:
SIZE=2;

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}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_SENSORS{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
+ pedestrian_sensor_data
+ hri_sensor_data.

Additional Sizing Assumptions:
None

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
+ dynamic_parking_information_for_traffic
+ request_other_TMC_data
+ request_sensor_static_data
+ selected_strategy
+ other_status_for_highways
+ other_status_for_roads
+ other_roadway_information_status
+ control_data_for_highways
+ control_data_for_roads
+ roadway_information_data
+ signal_override_status
+ barrier_system_status_to_operator
+ barrier_system_data_for_archive
+ roadway_info_operator_status
+ vehicle_signage_operator_status.

Additional Sizing Assumptions:
None

sensor_status

This data flow is used to collect sensor status data from the roadside. It consists of the following data item which is defined in its own DDE:

traffic_sensor_status.

Additional Sizing Assumptions:
None

sensor_status_from_traffic

This data flow is used within the Manage Traffic function to provide the operational status of sensors that collect traffic information at the roadside. It consists of the following data items each of which is defined in its own DDE:

traffic_sensor_status
+ traffic_sensor_fault_data
+ environmental_sensor_status.

Additional Sizing Assumptions:
None

sensor_status_to_roadway_m_and_c

This DFD flow represents the data flows from Process Sensor Data to Manage Roadway M&C Activities and includes roadway equipment status. It consists of the following items each of which is defined in its own DDE:

hov_sensor_equip_status_for_m_and_c
+ traffic_sensor_equip_status_for_m_and_c
+ env_sensor_data_for_auto_treat_device
+ infrastructure_sensor_status_for_m_and_c
+ infrastructure_sensor_data_for_m_and_c.

Additional Sizing Assumptions:
None

sensor_threat_data

This data flow contains threat information based on processing and analysis of data collected from sensor systems in secure areas. This data could include an alarm indicating that a threshold has been met or a data pattern recognized, and support information detailing the type, urgency, and severity of the threat. .

Additional Sizing Assumptions:
SIZE=24;

sensor_threat_data_for_analysis

This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from sensor systems in secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, on-board transit vehicles, etc.) and those typically away from travelers (tunnels, bridges, roadway infrastructure). This data is collected from threat sensors, object detection sensors, intrusion and motion sensors, and infrastructure integrity monitoring sensors. This data could include an alarm indicating that a threshold has been met or a data pattern recognized, and could be a result of a single sensor or correlation of data from multiple sensors and sensor types. The data flow consists of the following data items each of which is defined in its own DDE:

sensor_threat_data
+ geographical_area.

Additional Sizing Assumptions:
None

sensor_type

This data flow contains the type for a particular sensor. The type defines both what the sensor will detect and the type of unit that it is. The type is represented by character codes and may be but are not limited to appearing as ground based sensor for all types of vehicles, ground based sensor for emergency vehicles, ground based sensor for transit vehicles, above ground based sensor for all types of vehicles, above ground based sensor for emergency vehicles, above ground based sensor for transit vehicles, ground based sensor for cycles, above ground based sensor for cycles, ground based sensor for pedestrians, above ground based sensor for pedestrians. .

Additional Sizing Assumptions:
SIZE=3;

sensor_vehicle_speed_data

This DFD flow represents the data flows from Process Sensor Data to Manage Vehicle Speed and includes speed data and environmental sensor data. It consists of the following items each of which is defined in its own DDE:

speed_data_for_m_and_c_speed_monitoring
+ speed_data_for_traffic_speed_monitoring
+ env_sensor_data_for_speed_enforcement.

Additional Sizing Assumptions:
None

service_req_and_confirm_data

This store is used within the Provide Driver and Traveler Services function. It contains details of all of the service requests and confirmations input by the traveler via a 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
+ traveler_trip_and_cond_requests_for_archive
+ traveler_yellow_pages_requests_for_archive
+ advisory_data_request_for_archive
+ traveler_route_request_for_archive
+ traveler_confirm_for_archive
+ traveler_route_accepted_for_archive
+ vehicle_route_request_for_archive
+ vehicle_guidance_route_accepted_for_archive
+ yellow_pages_advisory_requests_for_archive
+ event_information_requests_for_archive.

Additional Sizing Assumptions:
None

service_req_and_confirm_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about traveler service requests and confirmations input by the traveler 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.

Additional Sizing Assumptions:
None

service_req_and_confirm_for_archive_attributes

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data attribute information to the data archive about traveler service requests and confirmations input by the traveler 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.

Additional Sizing Assumptions:
None

setting_identity

This data flow contains an identifier for a travelers setting, which is used to describe a set of conditions or preferences under which the traveler wants information reported to them in a subscription mode. .

Additional Sizing Assumptions:
SIZE=8;

setting_preferences

This data flow contains code or text describing the preferences chosen by the traveler. These preferences are then paired with the setting type to create a complete picture of how the traveler wants information transmitted to them.
.

Additional Sizing Assumptions:
SIZE=4;

setting_type

This data flow contains a code for the type of setting which is being produced. .

Additional Sizing Assumptions:
SIZE=4;

shelter_availability

This data flow contains information regarding the availability of shelters. Information contained includes if the shelter is open, number of people the shelter can accommodate in total, the current occupation of the shelter, etc. .

Additional Sizing Assumptions:
SIZE=48;

shelter_facilities_available

This data flow contains information regarding specific facilities available at a shelter. Information contained includes handicap facilities, medical capabilities, food and water supplies available, counseling services, pet/animal accommodations, disposal, storage, etc. .

Additional Sizing Assumptions:
SIZE=48;

shelter_information

This data flow contains information about individual shelters or groups of shelters operated by a relief organization within a region. It contains the location, type, available space, and any other facilities provided at the shelter. The data flow consists of the following data items which are defined in their own DDE:

shelter_availability
+ shelter_location
+ shelter_type
+ shelter_facilities_available.

Additional Sizing Assumptions:
None

shelter_location

This data flow contains information regarding the location of shelters. .

Additional Sizing Assumptions:
SIZE=48;

shelter_type

This data flow contains information regarding the type of shelter. Information contained includes the type of shelter (underground, tornado, hurricane, chemical, radiation, etc). .

Additional Sizing Assumptions:
SIZE=48;

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. .

Additional Sizing Assumptions:
SIZE=64;

signal_override_equip_status_for_m_and_c

This data flow is sent to the Manage Maintenance and Construction function and contains data indicating signal priority or preemption was granted to transit or emergency vehicles. The data is sent from controllers for a particular road junction, pedestrian crossing, or highway entrance ramp. The data is used to help determine whether a fault detected is a true malfunction or due to a signal override as a result of signal priority or preemption. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_vehicle_preemptions
+ transit_vehicle_roadway_priorities.

Additional Sizing Assumptions:
None

signal_override_status

This data flow is sent to the Manage Traffic function and contains data pertaining to the request from the Manage Transit function or Manage Emergency services for signal priority or signal preemption. This will be at the controller for a particular road junction, pedestrian crossing, or highway entrance ramp. The data is sent directly from the signal as an override function rather than a signal malfunction. The data flow consists of the following data items each of which is defined in its own DDE:

emergency_vehicle_preemptions
+ transit_vehicle_roadway_priorities.

Additional Sizing Assumptions:
None

silent_and_audible_alarm_data

This data flow is used by the Manage Silent Alarms function to forward emergency calls and emergency data from travelers (including users of the transit system), and transit vehicle operators to another process where it is then distributed. It contains the following data items, each of which is contained in its own DDE:

traveler_alarm_request
+ secure_transit_vehicle_alarm_request
+ time.

Additional Sizing Assumptions:
None

silent_and_audible_alarm_request

This data flow is used within the Manage Emergency Services function to inform the center personnel that a traveler or transit vehicle operator has issued a silent or audible alarm request for emergency assistance. The traveler may be on-board a transit vehicle or at a transit stop, rest area, park and ride lot, modal interchange facility, etc. The data flow contains the following data items each of which is defined in its own DDE:

traveler_alarm_request
+ secure_transit_vehicle_alarm_request
+ time.

Additional Sizing Assumptions:

None

silent_and_audible_alarm_response

This data flow is used within the Manage Emergency Services function to confirm that the request for emergency assistance previously sent to the center personnel by a traveler or transit vehicle operator has been received. The traveler may be on-board a transit vehicle or at a transit stop, rest area, park and ride lot, modal interchange facility, etc. The data flow contains the following data items each of which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

skyway_information

This data flow contains details contains details for skyway information (available skyways, skyways under construction, etc.) available to pedestrians. .

Additional Sizing Assumptions:
SIZE=20480;

smart_probe_equip_status_for_m_and_c

This data flow contains an indication to the Manage Maintenance and Construction function that the output of the vehicle smart probe beacon is faulty. This may be due to faulty data received from a vehicle smart probe by the beacon, or the beacon itself may be malfunctioning. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

smart_probe_reader_status

This data flow contains the status of vehicle smart probe readers. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + device_status}.

Additional Sizing Assumptions:
None

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. .
Additional Sizing Assumptions:
SIZE=4;

source_reliability_information

This data flow contains an assessment of the reliability of the sources of weather or road condition data. This assessment addresses the risk entailed in using each data source as part of decision support. .

Additional Sizing Assumptions:
SIZE=64;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

speed

This data flow is used within the Provide Vehicle Control and Monitoring function and contains the vehicle's speed as computed from on-board sensors. .

Additional Sizing Assumptions:
SIZE=2;

speed_data_for_m_and_c_display

This data flow contains vehicle speed data for display to the Maintenance and Construction Center Personnel. The speed data could be actual sensor data, or data that has been processed or aggregated. It consists of the following data items each of which are defined in its own DDE:

individual_vehicle_speed
+ processed_speed_sensor_data.

Additional Sizing Assumptions:
None

speed_data_for_m_and_c_speed_monitoring

This data flow contains speed data obtained from processing the inputs from sensors around the road network. It consists of the following data items each of which is defined in its own DDE:

list_size
+ 1{station_id
+ sensor_identity
+ traffic_sensor_output}list_size.

Additional Sizing Assumptions:
SIZE=list_size+1{SENSOR_LOCATION+SENSOR_LINK}{station_id+sensor_identity
+traffic_sensor_output};

speed_data_for_status

This data flow contains vehicle speed data for use in developing work zone status. The speed data could be actual sensor data, or data that has been processed or aggregated. It consists of the following data items each of which are defined in its own DDE:

individual_vehicle_speed
+ processed_speed_sensor_data.

Additional Sizing Assumptions:
None

speed_data_for_traffic_display

This data flow contains vehicle speed data for display to the Traffic Operations Personnel. The speed data could be actual sensor data, or data that has been processed or aggregated. It consists of the following data items each of which are defined in its own DDE:

individual_vehicle_speed
+ processed_speed_sensor_data.

Additional Sizing Assumptions:
None

speed_data_for_traffic_speed_monitoring

This data flow is used within the Manage Traffic function and contains speed data obtained from processing the inputs from sensors around the road network. It consists of the following data items each of which is defined in its own DDE:

list_size
+ 1{station_id

+ sensor_identity
+ traffic_sensor_output}list_size.

Additional Sizing Assumptions:
SIZE=list_size+1{SENSOR_LOCATION+SENSOR_LINK}{station_id+sensor_identity
+traffic_sensor_output};

speed_data_for_traffic_status

This data flow contains vehicle speed data for use in developing overall traffic status. The speed data could be actual sensor data, or data that has been processed or aggregated. It consists of the following data items each of which are defined in its own DDE:

individual_vehicle_speed
+ processed_speed_sensor_data.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

speed_sensor_control

This data flow provides control commands for a single speed sensor at the roadway. These commands can be used to configure the sensor and to define the conditions under which vehicle speed is output to the driver (e.g. a warning may be given only when the speed exceeds the limit set by the control command). .

Additional Sizing Assumptions:
SIZE=32;

speed_sensor_control_from_m_and_c

This data flow provides control commands for speed sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{sensor_identity
+ speed_sensor_control}.

Additional Sizing Assumptions:
None

speed_sensor_control_from_traffic

This data flow provides control commands for speed sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{sensor_identity
+ speed_sensor_control}.

Additional Sizing Assumptions:
None

speed_sensor_data

The data flow represents the output of a single speed sensor located at the roadway. .

Additional Sizing Assumptions:
SIZE=32;

speed_sensor_log_for_m_and_c

This data flow contains a log of speed sensor information. The data flow may provide periodic summaries of the speed of vehicles as measured by the sensors (e.g. a processed view such as a speed profile). The data flow may provide actual sensor readings that can be filtered and analyzed by the Monitor Vehicle Speed in Work Zone process. It consists of the following data items each of which are defined in its own DDE:

list_size + list_size{sensor_identity
+ speed_sensor_data}
+ processed_speed_sensor_data.

Additional Sizing Assumptions:
None

speed_sensor_log_for_traffic

This data flow contains a log of speed sensor information. The data flow may provide periodic summaries of the speed of vehicles as measured by the sensors (e.g. a processed view such as a speed profile). The data flow may provide actual sensor readings that can be filtered and analyzed by the Monitor Vehicle Speed in Work Zone process. It consists of the following data items each of which are defined in its own DDE:

list_size + list_size{sensor_identity
+ speed_sensor_data}
+ processed_speed_sensor_data.

Additional Sizing Assumptions:
None

speed_sensor_status_for_m_and_c

This data flow provides a report of the status of a set of speed sensors. The status flow provides the sensor configuration as well as a fault indication. By monitoring this data flow, the receiving process can monitor the health and current status of the field equipment. It consists of the following data items each of which are defined in its own DDE:

list_size + list_size{sensor_identity
+ sensor_device_status}.

Additional Sizing Assumptions:
None

speed_sensor_status_for_traffic

This data flow provides a report of the status of a set of speed sensors. The status flow provides the sensor configuration as well as a fault indication. By monitoring this data flow, the receiving process can monitor the health and current status of the field equipment. It consists of the following data items each of which are defined in its own DDE:

list_size + list_size{sensor_identity
+ sensor_device_status}.

Additional Sizing Assumptions:
None

speed_violation_notification_for_m_and_c

This data flow contains an indication that a speed violation has been identified. The data flow would not contain the identification of the violating vehicle. It consists of the following data item which is defined in its own DDE:

individual_vehicle_speed.

Additional Sizing Assumptions:
None

speed_violation_notification_for_traffic

This data flow contains an indication that a speed violation has been identified. The data flow would not contain the identification of the violating vehicle. It consists of the following data item which is defined in its own DDE:

individual_vehicle_speed.

Additional Sizing Assumptions:
None

speed_warning_for_display

This data flow contains a speed warning that can be displayed to a driver via a dynamic message sign (DMS). The warning may indicate that the vehicle is exceeding the speed limit or it may indicate how many miles per hour over the speed limit was measured. .

Additional Sizing Assumptions:
SIZE=8;

ssr_control_request

This data flow requests specialized control device activation at a grade crossing identified as a suitable for Standard Speed Rail service. .

Additional Sizing Assumptions:
SIZE = 128;

ssr_device_control

This data flow controls the state of specialized control devices at a grade crossing identified as a suitable for Standard Speed Rail service. .

Additional Sizing Assumptions:
SIZE = 128;

ssr_device_control_state

This data flow contains the state of specialized control devices at a grade crossing identified as a suitable for Standard Speed Rail service. .

Additional Sizing Assumptions:
SIZE = 128;

staging_area

This data flow shall identify and locate staging areas in order to coordinate responses to major incidents. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

state_contact_address

This data flow is used within the Manage Emergency Services function and contains the full postal address (including zip code) of a state Department of Motor Vehicle (DMV) office. This is one of the details that is used to obtain vehicle registration data from a vehicle license. .

Additional Sizing Assumptions:
SIZE=50;

state_contact_computer

This data flow is used within the Manage Emergency Services function and contains the computer telephone number of a state Department of Motor Vehicle (DMV) office. This number provides direct but password and encrypted access to a computer within the DMV office, and is one of the details that is used to obtain vehicle registration data from a vehicle license. .

Additional Sizing Assumptions:
SIZE=10;

state_contact_data

This data flow is used within the Manage Traffic function and contains the contact information for all state Department of Motor Vehicle (DMV) offices from which a match between vehicle license and vehicle registration number can be obtained. It consists of the following data items each of which is defined in its own DDE:

state_contact_method
+ state_contact_details
+ state_contact_identity.

Additional Sizing Assumptions:
None

state_contact_details

This data flow is used within the Manage Emergency Services function and contains the details of all the available access points for a state Department of Motor Vehicle (DMV) office. These access points comprise addresses, telephone numbers, etc. through which the DMV office may be sent vehicle license data from which it is expected that vehicle registration information will be provided. Not all entries may be present, and as a minimum only one is needed. The details are contained in the following data items each of which is defined in its own DDE:

state_contact_address
+ state_contact_computer
+ state_contact_email
+ state_contact_fax
+ state_contact_name
+ state_contact_phone.

Additional Sizing Assumptions:
None

state_contact_email

This data flow is used within the Manage Emergency Services function and contains the e-mail address of a state Department of Motor Vehicle (DMV) office. This is one of the details that is used to obtain vehicle registration data from a vehicle license. .

Additional Sizing Assumptions:
SIZE=30;

state_contact_fax

This data flow is used within the Manage Emergency Services function and contains the telephone number of the fax line for a state Department of Motor Vehicle (DMV) office. This is one of the details that is used to obtain vehicle registration data from a vehicle license. .

Additional Sizing Assumptions:
SIZE=10;

state_contact_identity

This data flow contains an identity code for a particular State Department of Motor Vehicle (DMV) office from which a match between vehicle license and vehicle registration number can be obtained. There is one of these codes for every state and each uses the standard two character abbreviation for each State, e.g. MD for Maryland, CA for California, etc. .

Additional Sizing Assumptions:
SIZE=2;

state_contact_method

This data flow defines the method by which a state Department of Motor Vehicle (DMV) office shall be contacted with details of a vehicle license for which the corresponding registration data is required. This may have but will not be limited to one of the following entries to define the method: e-mail message, postal service, voice based telephone call, fax, etc. Only one method should be specified for each agency, the processes responsible for passing the data being able to report failure to communicate. .

Additional Sizing Assumptions:
SIZE=3;

state_contact_name

This data flow is used within the Manage Emergency Services function and contains the name of a state Department of Motor Vehicle (DMV) office. This is one of the details that is used to obtain vehicle registration data from a vehicle license. .

Additional Sizing Assumptions:
SIZE=30;

state_contact_phone

This data flow is used within the Manage Emergency Services function and contains the voice line telephone number of a state Department of Motor Vehicle (DMV) office. This is one of the details that is used to obtain vehicle registration data from a vehicle license. .

Additional Sizing Assumptions:
SIZE=10;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

static_data_for_control

This data flow includes data that is used by the processes that output control data to roadside equipment on roads and highways. The data flow consists of the following items each of which is defined in its own DDE:

static_data_for_highway_control
+ static_data_for_road_control
+ static_data_for_vehicle_signage
+ static_data_for_dms_allocation.

Additional Sizing Assumptions:
None

static_data_for_dms_allocation

This data flow includes data that is used by the process that outputs control data to dynamic message signs (DMS) at the roadside and monitors its subsequent operation. The data flow consists of the following items each of which is defined in its own DDE:

dms_allocation
+ dms_hri_allocation.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

static_data_for_parking_lots

This data flow is used within the Manage Traffic function and contains data that relates vehicle sensors, queue counting sensors and signs to individual parking lots, and the lot occupancy(ies) at which states such as 'almost full' and 'full' will apply. The data is sent to each parking lot for its own use. The data flow consists of the following data items each of which is defined in its own DDE:

parking_lot_identity
+ parking_lot_sensor_allocation
+ parking_lot_state_thresholds
+ parking_lot_dms_allocation.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

static_data_for_roads

This data flow comprises data that defines the way in which each road indicator (vehicle outputs, pedestrian outputs and multimodal crossing outputs) operates, plus rules for the coordination of the road and highway control strategies, and the way in which each segment of the road network fits together. It consists of the following data items each of which is defined in its own DDE:

road_network
+ indicator_road_control_static_data
+ road_control_devices
+ sensor_allocation
+ coordination_rules_for_roads.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

static_data_for_sensor_processing

This data store is used in the Manage Traffic function. It contains data that shows which data items obtained by processes in the Provide Traffic Surveillance facility apply to other processes in the Traffic Surveillance and Control facility. It consists of the following data items each of which is defined in its own DDE:

highway_control_devices
+ highway_network
+ ramp_devices
+ road_control_devices
+ road_network
+ sensor_allocation
+ dms_allocation
+ dms_hri_allocation.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

static_data_for_traffic_control

This data store contains data used in the processing of data provided by traffic sensors and in the control of indicators (intersection signals, pedestrian crossing signals, etc) 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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

static_data_for_vehicle_signage

This data flow includes data that is used by the process that outputs control data to roadside equipment responsible for broadcasting data for use by in-vehicle signage systems. This data consists of the identity of the roadside equipment and the identity of the indicators whose data may be output by the roadside equipment. The data flow consists of the following items each of which is defined in its own DDE:

list_size
+ list_size{vehicle_signage_output_identity
    + indicator_identity}.

Additional Sizing Assumptions:
SIZE=list_size+VEHICLE_SIGN_OUTPUTS{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. .

Additional Sizing Assumptions:

SIZE=1;

static_parking_information_for_isp

This data flow contains static parking information that would be of interest to travelers. This includes lot location, features (e.g. ability to handle oversized vehicles), capacity, type, hours of operation and rates. This data flow is made up of the following data items, each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_hours_of_operation
    + parking_lot_identity
    + parking_lot_price
    + parking_lot_spaces
    + parking_lot_entrance_location
    + parking_lot_type
    + parking_lot_features
    + parking_lot_fill_time}.

Additional Sizing Assumptions:
None

static_parking_information_for_traffic

This data flow contains static parking information that would be of interest to traffic management. This includes lot location, features (e.g. ability to handle oversized vehicles), capacity, type, hours of operation and rates. This data flow is made up of the following data items, each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_hours_of_operation
    + parking_lot_identity
    + parking_lot_entrance_location
    + parking_lot_type
    + parking_lot_features}.

Additional Sizing Assumptions:
None

static_parking_information_for_transit

This data flow contains static parking information that would be of interest to transit management. This includes lot location, features (e.g. ability to handle oversized vehicles), capacity, type, hours of operation and rates. This data flow is made up of the following data items, each of which is defined in its own DDE:

list_size
+ list_size{parking_lot_hours_of_operation
    + parking_lot_identity
    + parking_lot_price
    + parking_lot_spaces
    + parking_lot_entrance_location
    + parking_lot_type
    + parking_lot_features
    + parking_lot_fill_time}.

Additional Sizing Assumptions:
None

station_id

This data flow contains the identifier of a specific piece of field equipment. .

Additional Sizing Assumptions:
SIZE=4;

status_data_for_highways

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

indicator_highway_requested_state.

Additional Sizing Assumptions:
None

status_data_for_roads

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

indicator_input_state_for_roads.

Additional Sizing Assumptions:
None

status_of_other_work_zones

This data flow contains the current status of other work zones, including field personnel status, maintenance and construction vehicle status, and activity status. .

Additional Sizing Assumptions:
SIZE=64;

steering_commands

This data flow contains data showing any changes required to the vehicle's steering so that it will change from the current lane to an adjacent lane on either side (left or right). The commands are of the form turn left, turn right, or center the steering and may be of a larger order of magnitude than the similar commands for lane following control. .

Additional Sizing Assumptions:
SIZE=64;

storage_facility_id

This data flow is used within the Manage Maintenance and Construction function and contains the unique facility identification number assigned to each maintenance and construction storage facility. .

Additional Sizing Assumptions:
SIZE=8;

stored_credit

This data flow is contains the value of the credit currently stored by the traveler card / payment instrument. .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=8;

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. .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
None

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. .
Additional Sizing Assumptions:
SIZE = 128;

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.

Additional Sizing Assumptions:
None

suggested_route_to_mcv

This data flow provides a suggested route for a dispatched vehicle that takes into account current traffic conditions, the current location and routes of other vehicles, and any road restrictions. This data flow identifies the

maintenance and construction vehicle and provides turn-by-turn route information. The data flow consists of the following data items each of which is defined in its own DDE:

route_identity
+ route_segment_number{route_segment_description
+ route_segment_end_point
+ route_segment_estimated_travel_time
+ route_segment_report_position_points
+ route_segment_start_point}
+ vehicle_id_for_mcv.

Additional Sizing Assumptions:
None

supplied_route

This data flow is used within the Provide Driver and Traveler Services function to provide details of a route selected by the traveler. It contains the following data items each of which is defined in its own DDE:

route
+ route_cost
+ traveler_identity.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

surface_trans_weather_advisories

This data flow provides an indication of surface transportation related weather situations that cause significant impact upon the surface transportation network. Examples of these might be frost warnings or high profile vehicle advisories for strong winds. Advisories are issued for significant events that are occurring, are imminent, or have a very high probability of occurrence. .

Additional Sizing Assumptions:
SIZE=64;

surface_trans_weather_archive_catalog

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

Additional Sizing Assumptions:
SIZE=32;

surface_trans_weather_archive_catalog_request

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

Additional Sizing Assumptions:
SIZE=32;

surface_trans_weather_archive_data_request

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

Additional Sizing Assumptions:
SIZE=32;

surface_trans_weather_data_for_archive

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

surface_trans_weather_observations
+ weather_observation_attributes
+ micro_scale_surface_trans_weather_forecasts
+ miso_scale_surface_trans_weather_forecasts
+ meso_scale_surface_trans_weather_forecasts
+ synoptic_scale_surface_trans_weather_forecasts
+ climatic_scale_surface_trans_weather_forecasts
+ surface_trans_weather_scale_forecast_data_attributes.

Additional Sizing Assumptions:
None

surface_trans_weather_forecast_details

This data flow contains forecasts of specific surface transportation related weather variables including temperature (ambient, dew point and pavement), pressure, wind parameters (direction, speed, and character), humidity, precipitation, roadway visibility, light conditions, and pavement conditions. The data flow also contains weather variable attributes such as ensemble statistics, initialization time of forecast, source of boundary conditions, means of forecast, the application location of the forecast and the applicable time of the forecast. .

Additional Sizing Assumptions:
SIZE=64;

surface_trans_weather_information

This data flow consists of surface transportation weather information from the Surface Transportation Weather Service terminator, including current surface weather observations and various scales of surface weather forecasts. It contains the following items that will be organized by geographic area to allow for local variations and each of which is defined in its own DDE:

fstws-surface_trans_weather_observations
+ fstws-surface_trans_weather_forecasts.

Additional Sizing Assumptions:
None

surface_trans_weather_observations

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

Additional Sizing Assumptions:
SIZE=64;

surface_trans_weather_scale_forecast_data_attributes

This data flow contains meta data about the meteorological scale surface transportation weather forecast including persistence of an observation or previous forecast, numerical model used, model output statistics (MOS), and any description of how forecast types are combined. .

Additional Sizing Assumptions:
SIZE=32;

surveillance_data_for_archive

This data flow is used to archive surveillance data from secure areas, including high resolution video image snapshots, audio, and data produced by processing those images and audio. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image
+ secure_audio
+ secure_area_images
+ secure_video_image_data
+ secure_audio_data}.

Additional Sizing Assumptions:
None

surveillance_data_for_env

This flow represents the data flows from Provide Traffic Surveillance to Manage Environmental Information and includes environmental sensor data and status information. It consists of the following items each of which is defined in its own DDE:

environmental_sensor_data_from_roadway
+ environmental_sensor_fault_data_from_roadway
+ environmental_sensor_status_from_roadway
+ environmental_sensor_data_from_roadway_sensors
+ environmental_sensor_fault_data_from_roadway_sensors
+ environmental_sensor_status_from_roadway_sensors
+ environmental_sensor_data_from_traffic_management.

Additional Sizing Assumptions:
None

surveillance_device_type_identity

This data flow contains an identifier indicating the type of surveillance equipment (video, audio). .

Additional Sizing Assumptions:
SIZE=2;

surveillance_threat_data

This data flow contains threat information based on processing and analysis of data collected from surveillance systems in secure areas. This data could include an alarm indicating that a threshold has been met or an audio or video pattern recognized, and support information detailing the type, urgency, and severity of the threat. .

Additional Sizing Assumptions:
SIZE=24;

surveillance_threat_data_for_analysis

This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from surveillance systems in secure areas, including those frequented by travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, on-board transit vehicles, etc.) and those typically away from travelers (tunnels, bridges, roadway infrastructure). This data could include an alarm indicating that a threshold has been met or an audio or video pattern recognized, and could be a result of a single surveillance system or correlation of data from multiple surveillance systems. The data flow consists of the following data items each of which is defined in its own DDE:

surveillance_threat_data
+ geographical_area.

Additional Sizing Assumptions:
None

synoptic_scale_surface_trans_weather_forecasts

This data flow contains forecasts of surface transportation related weather and weather related events at time horizons from 12 hours to several days and spatial horizon of 100 to 5000 kilometers. The time horizon is defined as the time between the observations on which the forecast is based (alternatively, when the forecast process is started) and the time that the forecast applies to. It consists of the following data item which is defined in its own DDE:

surface_trans_weather_forecast_details.

Additional Sizing Assumptions:
None

synoptic_scale_weather_forecasts

This data flow contains forecasts of atmospheric weather and weather related events at time horizons from 12 hours to several days and spatial horizon of 100 to 5000 kilometers. The time horizon is defined as the time between the observations on which the forecast is based (alternatively, when the forecast process is started) and the time that the forecast applies to. It consists of the following data items each of which is defined in its own DDE:

weather_forecast_details
+ weather_watches.

Additional Sizing Assumptions:
None

system_status_onboard_to_mcv_operator

This data flow is used within the Manage Maintenance and Construction function to inform the field personnel about the maintenance and construction activity performed by the vehicle. Operational data includes the operational state of the maintenance equipment (e.g., blade up/down, spreader pattern) and a record of the actual work performed. It consists of the following data item which is defined in its own DDE:

operational_data_for_mcv.

Additional Sizing Assumptions:
None

t_other_rw_dms_auto_treat_data_from_roadway

This data flow from an automated road treatment system causes a roadway information device such as a dynamic message sign (DMS) to display an indication of the status of automated road treatment (e.g. on-going, just completed, about to begin). The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}.

Additional Sizing Assumptions:
None

t_other_rw_dms_barrier_activated_from_roadway

This data flow from an automated barrier system causes a roadway information device such as a dynamic message sign (DMS) to display an indication of the status of the barrier system (e.g. open, closed). The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}.

Additional Sizing Assumptions:
None

t_other_rw_dms_safeguard_activated_from_roadway

This data flow from an automated safeguard system (e.g. blast shields, exhaust fans) causes a roadway information device such as a dynamic message sign (DMS) to display an indication of the status of the safeguard system (e.g. ongoing, just completed, about to begin). The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
+ dms_advisory_text + lane_dms_controls}.

Additional Sizing Assumptions:
None

t_other_rw_env_sensor_control_by_auto_treat_device

This data flow provides control commands for an environmental sensor being controlled by automated treatment devices at the roadway. The data flow consists of the following data item which is defined in its own DDE:

env_sensor_control_by_roadway_treatment_device.

Additional Sizing Assumptions:
None

t_other_rw_env_sensor_data

This data flow contains data about environmental conditions detected by roadside sensors that can be output to other roadside devices. This data may include fog detection, temperature information, or icy conditions that could be used to warn drivers as they approach the area or as input to an automated treatment device at the roadway. It consists of the following data items each of which is defined in its own DDE:

t_other_rw_env_sensor_data_for_auto_treat_device
+ t_other_rw_env_sensor_data_to_dms.

Additional Sizing Assumptions:
None

t_other_rw_env_sensor_data_for_auto_treat_device

This data flow provides data from an individual environmental sensor into an automated treatment device at the roadway. It consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes.

Additional Sizing Assumptions:
None

t_other_rw_env_sensor_data_to_dms

This data flow contains information from the output of an environment sensor for direct display on a roadway information device (e.g. a dynamic message sign (DMS)). It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{station_id + sensor_identity + environment_sensor_output}.

Additional Sizing Assumptions:
None

t_other_rw_fc_control_to_fc

This data flow is sent to another highway roadside device (e.g., another ramp meter controller) and contains control information for a highway roadside indicator. It can contain the actual data from which instructions to the driver and traveler can be produced by indicators at the roadside on highways in the geographic and/or jurisdictional area(s) served by the function. It is used for sharing of control between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

indicator_crossing_control_data_for_highways
+ indicator_ramp_control_data.

Additional Sizing Assumptions:
None

t_other_rw_fc_control_to_traffic_sensor

This data flow is sent to a traffic sensor device on the roadside from a highway roadside indicator (e.g., ramp meter controller) and contains sensor control commands. .

Additional Sizing Assumptions:
SIZE=8;

t_other_rw_fc_status_to_fc

This data flow is sent to another highway roadside device (e.g. another ramp meter controller) and contains status and fault indications for a highway roadside indicator. The data flow can contain the actual state of operation of the highway roadside indicators. It is used for coordination between peer roadside indicators or for information transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + indicator_response_state + indicator_fault}.

Additional Sizing Assumptions:
None

t_other_rw_fc_to_fc

This data flow is sent to other highway roadside devices (e.g. another ramp meter controller) and contains status, fault indications, and control information for a highway roadside indicator. It is used for coordination between peer roadside indicators or for information transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

t_other_rw_fc_status_to_fc
+ t_other_rw_fc_control_to_fc.

Additional Sizing Assumptions:
None

t_other_rw_ic_control_to_ic

This data flow is sent to another roadside device (another intersection controller) and contains control information for a roadside indicator. It can contain the actual data from which instructions to the driver and traveler can be produced by indicators at the roadside on roads (surface streets) in the geographic and/or jurisdictional area(s) served by the function. It is used for sharing of control between devices functioning in a hierarchical arrangement. It 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.

Additional Sizing Assumptions:
None

t_other_rw_ic_control_to_traffic_sensor

This data flow is sent to a traffic sensor device on the roadside from a roadside indicator (e.g., intersection controller) and contains sensor control commands. .

Additional Sizing Assumptions:
SIZE=8;

t_other_rw_ic_status_to_ic

This data flow is sent to another roadside device (another intersection controller) and contains status and fault indications for a roadside indicator. The data flow can contain the actual state of operation of the roadside indicators. It is used for coordination between peer roadside indicators or for information transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{indicator_identity
    + indicator_response_state + indicator_fault}.

Additional Sizing Assumptions:
None

t_other_rw_ic_to_ic

This data flow is sent to another roadside device (another intersection controller) and contains status, fault, and control information for a roadside indicator. It is used for coordination between peer roadside indicators or for information transfer between devices functioning in a hierarchical arrangement. It consists of the following data items each of which is defined in its own DDE:

t_other_rw_ic_status_to_ic
+ t_other_rw_ic_control_to_ic.

Additional Sizing Assumptions:
None

t_other_rw_individual_vehicle_speed_to_dms

This data flow contains an indication of an individual vehicle's speed which can be displayed on a dynamic message sign (DMS). This data flow is sent from one roadside device (the speed sensor) to another roadside device (the DMS). .

Additional Sizing Assumptions:
SIZE=8;

t_other_rw_sensor_to_fc

This data flow is sent to a highway roadside indicator from a traffic sensor device on the roadside and contains sensor status, fault data, and vehicle detection data. It consists of the following data items each of which is defined in its own DDE:

t_other_rw_traffic_sensor_data_to_fc
+ t_other_rw_traffic_sensor_status_to_fc.

Additional Sizing Assumptions:
None

t_other_rw_sensor_to_ic

This data flow is sent to a roadside indicator from a traffic sensor device on the roadside and contains sensor status, fault data, and vehicle detection data. It consists of the following data items each of which is defined in its own DDE:

t_other_rw_traffic_sensor_data_to_ic
+ t_other_rw_traffic_sensor_status_to_ic.

Additional Sizing Assumptions:
None

t_other_rw_speed_warning_to_dms

This data flow contains a speed warning that can be displayed to a driver via a dynamic message sign (DMS). The warning may indicate that the vehicle is exceeding the speed limit or it may indicate how many miles per hour over the speed limit was measured. The data flow is sent from one roadside device (the speed sensor) to another roadside device (the dynamic message sign). .

Additional Sizing Assumptions:
SIZE=8;

t_other_rw_traffic_sensor_data_to_fc

This data flow is sent to a highway roadside indicator from a traffic sensor device on the roadside and contains vehicle detection data; i.e., data that provides information about vehicles moving on the highway network. It consists of the following data item which is defined in its own DDE:

vehicle_detection_data.

Additional Sizing Assumptions:
None

t_other_rw_traffic_sensor_data_to_ic

This data flow is sent to a roadside indicator (intersection controller) from a traffic sensor device on the roadside and contains vehicle detection data; i.e., data that provides information about vehicles moving on the road network. It consists of the following data item which is defined in its own DDE:

vehicle_detection_data.

Additional Sizing Assumptions:
None

t_other_rw_traffic_sensor_status_to_fc

This data flow is sent to a highway roadside indicator from a traffic sensor device on the roadside and contains status and fault indications for that sensor. It consists of the following data item which is defined in its own DDE:

sensor_status.

Additional Sizing Assumptions:
None

t_other_rw_traffic_sensor_status_to_ic

This data flow is sent to a roadside indicator from a traffic sensor device on the roadside and contains status and fault indications for that sensor. It consists of the following data item which is defined in its own DDE:

sensor_status.

Additional Sizing Assumptions:
None

t_other_rw_work_zone_intrusion_detection

This data flow contains a time stamped indication from an intrusion detection sensor that an intrusion into the perimeter of the work zone has occurred. It consists of the following data item which is defined in its own DDE:

work_zone_intrusion_detection.

Additional Sizing Assumptions:
None

taas-threat_data_for_analysis

This data flow is sent to Alerting and Advisory Systems and contains data collected and analyzed from surveillance and sensor equipment in secure areas and is intended to be used for further threat analysis. .

Additional Sizing Assumptions:
SIZE=48;

taas-threat_info

This data flow is sent from the Manage Emergency Services function to Alerting and Advisory Systems and contains information about threats detected in the transportation network. This threat is based on analysis of data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area
+ threat_duration}.

Additional Sizing Assumptions:
None

taas-threat_info_from_cvo

This data flow contains information about threats detected by commercial vehicle operators. The threats include incidents involving commercial vehicles (i.e. hijacking) or unusual activities observed by commercial vehicle operators (i.e. truck parked under a bridge). This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area}.

Additional Sizing Assumptions:

None

taas-threat_info_from_freight

This data flow contains information about threats detected by freight equipment operators. The threats include incidents involving freight equipment (i.e. freight equipment tampering). This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area}.

Additional Sizing Assumptions:
None

taas-traveler_image

This data flow is sent to Alerting and Advisory Systems to analyze information about surveillance video images obtained from another process. The images are checked against a database of known images (criminal elements). The data flow contains the identity of an image that is being analyzed. The data flow consists of the following data item which is defined in its own DDE:

image_id.

Additional Sizing Assumptions:
None

taas-traveler_image_matching_details

This data flow contains the results of image matching analysis. This flow indicates whether an image has matched an image in the database of known images. The image data is obtained from areas frequented by travelers, and from areas typically away from travelers. The data flow consists of the following data items each of which is defined in its own DDE:

timestamp
+ station_id
+ transit_vehicle_location
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ image_match_potential_confirmation
+ image_id.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=2048;

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. .

Additional Sizing Assumptions:
SIZE=200000;

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. .

Additional Sizing Assumptions:
SIZE=200000;

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. .

Additional Sizing Assumptions:
SIZE=255;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

tag_identity

This data flow is used by various ITS functions. It represents the identity number of a vehicle tag which can be used to various purposes, including preclearance from paying dues, taxes, and other commercial vehicles charges, or by a traveler or driver for payment of current or advanced tolls, fares, or parking lot charges, etc. .

Additional Sizing Assumptions:
SIZE=16;

tam-archive_request

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

asset_archive_catalog_request
+ asset_archive_data_request.

Additional Sizing Assumptions:
None

tam-asset_archive_status

This data flow is sent from the Manage Archived Data function to Asset Management. It is the status returned when transportation asset archive data is sent to the Manage Archived Data function. .

Additional Sizing Assumptions:
SIZE=32;

tam-asset_status_update_for_asset_mgmt

This data flow from the Manage Maintenance and Construction function to Asset Management contains the M&C data to be used in updating the status of assets in the inventory. The data contains information about work zones, maintenance needs, maintenance and construction schedules and status, etc. This data flow contains the following items each of which is defined in its own DDE:

m_and_c_activity_status_for_archive
+ m_and_c_activity_schedule_for_archive
+ m_and_c_roadway_maint_needs_for_archive
+ m_and_c_maint_resource_needs_for_archive
+ m_and_c_winter_maint_needs_for_archive
+ work_zone_data_for_archive
+ field_device_status_for_archive
+ auto_treatment_system_status_for_archive
+ infrastructure_data_for_archive.

Additional Sizing Assumptions:
None

tam-infrastructure_data_for_analysis

This data flow consists of raw and processed data from the Manage Maintenance and Construction function to Asset Management regarding the condition of the infrastructure as reported from sensor equipment on the roadside and on-board maintenance and construction vehicles. This infrastructure includes bridges, culverts, signs, and other roadway infrastructure. By monitoring this data flow, Asset Management can assess the health of the infrastructure. It consists of the following data items each of which is defined in its own DDE:

infrastructure_sensor_data_for_m_and_c

+ mcv_infrastructure_sensor_data
+ processed_infrastructure_sensor_data.

Additional Sizing Assumptions:
None

tbcv-disable_vehicle

This data flow contains analog output that initiates the disabling of a commercial vehicle. .

Additional Sizing Assumptions:
SIZE=1;

tbmcv-vehicle_system_control

This data flow is sent from the Manage Maintenance and Construction function to the Basic Maintenance and Construction Vehicle and is used by on-board ITS systems to control the maintenance and construction vehicle equipment. It includes control data to support materials applications and other functions depending upon the type of vehicle. .

Additional Sizing Assumptions:
SIZE=32;

tbtv-transit_vehicle_disable_command

This data flow contains the command to disable a transit vehicle. Conditions where this command may occur include an incident in progress concerning the transit vehicle, such as a hijacking or armed robbery. This command would not be used for a less serious incident, such as an argument between passengers, or for a health emergency (e.g., heart attack) where the vehicle might be moving towards a hospital, or paramedics are on the way. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time.

Additional Sizing Assumptions:
None

tbtv-transit_vehicle_disable_reset_command

This data flow contains the command to reset the transit vehicle for transit vehicle operator logon. Conditions where this command may occur include when the transit vehicle operator has entered a password too many times and the system has not accepted it for operator authentication (i.e., a threshold was reached), or if an incident was in progress and the transit vehicle was disabled, but the incident is now over and the disabling is to be cancelled. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:

SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

tbv-har_broadcast

This data flow contains the output of a Highway Advisory Radio (HAR) operating at the roadside on either highways or road (surface street) in the geographic and/or jurisdictional area(s) served by the function. This output, the HAR program, is broadcast to an existing communications device (e.g. AM Radio) in a vehicle. .

Additional Sizing Assumptions:
SIZE=128;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:

SIZE=2;

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.

Additional Sizing Assumptions:
None

tcf-care_facility_disaster_data

This data flow sends disaster data to the care facility. It allows the facility to prepare the appropriate resources for expected patients. It consists of the following data item which is defined in its own DDE:

emergency_input_for_disaster
+ evacuation_status_for_disaster_response.

Additional Sizing Assumptions:
None

tcf-care_facility_status_request

This data flow requests information regarding the current status of hospital emergency rooms including if the hospital is accepting new arrivals, staff on call, waiting times, type of care currently available, specialized services (trauma, burn units), etc. .

Additional Sizing Assumptions:
SIZE=64;

tcf-care_facility_status_request_for_disaster

This data flow requests information regarding the current status of hospital emergency rooms including if the hospital is accepting new arrivals, staff on call, waiting times, type of care currently available, specialized services (trauma, burn units), etc. .

Additional Sizing Assumptions:
SIZE=64;

tcf-care_facility_vehicle_status_request

This data flow requests the request for information regarding the current status of the emergency care facility. This information is requested by the emergency personnel on-board the vehicle. .

Additional Sizing Assumptions:
SIZE=64;

tcf-emergency_vehicle_patient_status_update

This data flow represents the information regarding the current status of an emergency patient enroute to a care facility. It is provided from the emergency personnel on-board the vehicle. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=4000;

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. .

Additional Sizing Assumptions:
SIZE=1024000;

tci-output_log_report

This data flow is sent to the commercial vehicle inspector from the Manage Commercial Vehicles function and contains the commercial vehicle roadside checking facility log showing which vehicles have been stopped, passed, or pulled-in by the inspectors. .

Additional Sizing Assumptions:
SIZE=10240000;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=4000;

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. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=64;

tcvd-critical_security_problem

This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicle function and contains details of any commercial vehicle on-board security problems which have been detected. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

tcvd-on_board_pull_in_output

This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicle function. It represents the message to be sent to the driver of a vehicle that is being pulled in to a commercial vehicle roadside checking facility. This may be because problems with credentials, safety, or reading data from the tag of a particular vehicle, or a general pull-in request for all vehicles. It may also be output by a commercial vehicle roadside border crossing facility due to a problem with clearing a vehicle through a border crossing check point. The data will be output directly to the driver in the vehicle cab and not using any mechanism external to the vehicle. .

Additional Sizing Assumptions:
SIZE=8;

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. .

Additional Sizing Assumptions:

SIZE=8;

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. .

Additional Sizing Assumptions:
SIZE=1024;

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. .

Additional Sizing Assumptions:
SIZE=64;

tcvd-route_data

This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicles function and contains details of a route for a commercial vehicle, together with the location and type of each roadside facility along the route. Drivers will receive this data in response to previous data input because they are acting on the role of their own fleet managers, i.e. they will be owner drivers. .

Additional Sizing Assumptions:
SIZE=1024000;

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. .

Additional Sizing Assumptions:
SIZE=1024000;

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. .

Additional Sizing Assumptions:
SIZE=64;

tcvd-type_input_request

This data flow is used within the Manage Commercial Vehicles and contains a request for data from the commercial vehicle driver for processing prior to bypassing or being requested to pull in to an inspection/verification stop. .

Additional Sizing Assumptions:
SIZE=4;

tcvoir-credential_status

This data is sent from the Manage Commercial Vehicles function to the commercial vehicle operations information requestor. It contains credential information such as registration, licensing, insurance, check flags, and electronic screening enrollment data about a commercial vehicle or carrier. .

Additional Sizing Assumptions:
SIZE=1024;

tcvoir-credentials

This data flow contains consists of full credentials information .

Additional Sizing Assumptions:
SIZE = 2048;

tcvoir-safety_status

This data is sent from the Manage Commercial Vehicles function to the commercial vehicle operations information requestor. It contains safety information such as safety ratings, inspection summaries, and violation summaries about a commercial vehicle or carrier. .

Additional Sizing Assumptions:
SIZE=1024;

td-advisory_information

This data flow is sent to the driver from the Provide Driver and Traveler Services function. It contains displays of the various types of traffic and travel information messages available to the driver. This information will only be output following a specific request from the driver and will be filtered to only include that which is relevant to the vehicle's current location. .

Additional Sizing Assumptions:
SIZE=1024;

td-broadcast_information

This data flow is sent to the driver from the Provide Driver and Traveler Services function. It contains displays of the various types of broadcast information which can be output to the driver. This information will comprise but not be limited to such things as safety warnings, position warnings, enhanced vision, vehicle status, data from smart vehicle probes, etc. .

Additional Sizing Assumptions:
SIZE=512;

td-dms_indication

This data flow is sent to the driver by the Manage Traffic function and contains a textual message either warning drivers of a potential hazard, or providing mandatory instructions as to the availability of all or part of a freeway or road (surface street) served by the function. .

Additional Sizing Assumptions:
SIZE=32;

td-driving_guidance

This data flow is sent to the driver from the Provide Driver and Traveler Services function and contains output (displays - text and/or graphics, and/or audio based information) which gives the driver instructions on how to steer the vehicle, e.g. turn left at the next intersection, take the middle lane, fork right at the next intersection, etc. .

Additional Sizing Assumptions:
SIZE=1024;

td-guidance_input_request

This data flow is sent to the driver from the Provide Driver and Traveler Services function and contains a request for the input of a specific item of data needed to determine the vehicle route for on-line guidance. The data may comprise such things as the destination, preferred arrival time, plus route choice preferences and constraints. .

Additional Sizing Assumptions:
SIZE=4;

td-guidance_map_update_response

This data flow is sent to the driver from the Provide Driver and Traveler Services function and contains the response to a previous request for the update of the digitized map data used to provide on-line vehicle guidance. .

Additional Sizing Assumptions:
SIZE=2;

td-guidance_route_details

This data flow is sent to the driver from the Provide Driver and Traveler Services function and contains details of the route that has been selected in response to the driver's request for on-line guidance. The route and choice of guidance method will have been based on previous input from the driver. Guidance will not begin until the driver has positively accepted this data. .

Additional Sizing Assumptions:
SIZE=128;

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.

Additional Sizing Assumptions:
None

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). .

Additional Sizing Assumptions:
SIZE=4;

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). .

Additional Sizing Assumptions:
SIZE=4;

td-mcv_on_board_display

This data flow represents the display to a driver of work zone advisory information via a roadway information device (e.g. a Dynamic Message Sign) that is on-board a maintenance and construction vehicle .

Additional Sizing Assumptions:
SIZE=64;

tdmv-emissions_violation_identity_code

This data flow is sent to the department of motor vehicles from the Manage Emergency Services function and contains the identity code of the ITS that is requesting the vehicle registration data so pollution violation can be processed. .

Additional Sizing Assumptions:
SIZE=2;

tdmv-emissions_violation_vehicle_license

This data flow is sent to the department of motor vehicles from the Manage Emergency Services function and contains the vehicle license for which the corresponding registration data is required so that a pollution violation can be processed. .

Additional Sizing Assumptions:
SIZE=16;

tdmv-parking_lot_violation_identity_code

This data flow is sent to the department of motor vehicles from the Manage Emergency Services function and contains the identity code of the ITS that is requesting the vehicle registration data so that a parking lot payment violation can be processed. .

Additional Sizing Assumptions:
SIZE=2;

tdmv-parking_lot_violation_vehicle_license

This data flow is sent to the department of motor vehicles from the Manage Emergency Services function and contains the vehicle license for which the corresponding registration data is required so that a parking lot payment violation can be processed. .

Additional Sizing Assumptions:
SIZE=16;

tdmv-toll_violation_identity_code

This data flow is sent to the department of motor vehicles from the Manage Emergency Services function and contains the identity code of the ITS that is requesting the vehicle registration data so that a toll payment violation can be processed. .

Additional Sizing Assumptions:
SIZE=2;

tdmv-toll_violation_vehicle_license

This data flow is sent to the department of motor vehicles from the Manage Emergency Services function and contains the vehicle license for which the corresponding registration data is required so that a toll payment violation can be processed. .

Additional Sizing Assumptions:
SIZE=16;

tdmv-traffic_violation_identity_code

This data flow is sent to the department of motor vehicles from the Manage Emergency Services function and contains the identity code of the ITS that is requesting the vehicle registration data so that a high occupancy vehicle (hov) lane be processed. .

Additional Sizing Assumptions:
SIZE=2;

tdmv-traffic_violation_vehicle_license

This data flow is sent to the department of motor vehicles from the Manage Emergency Services function and contains the vehicle license for which the corresponding registration data is required so that a high occupancy vehicle (hov) lane violation can be processed. .

Additional Sizing Assumptions:
SIZE=16;

td-other_services_parking_response

This data flow is sent to the driver from the Provide Driver and Traveler Services function and contains the response to the traveler's previously input request for additional services other than simple parking lot charge collection. .

Additional Sizing Assumptions:
SIZE=2;

td-other_services_toll_response

This data flow is sent to the driver from the Provide Driver and Traveler Services function and contains the response to the traveler's previously input request for additional services other than simple toll collection. .

Additional Sizing Assumptions:
SIZE=2;

td-parking_lot_payment_confirmed

This data flow is sent to the driver from the Provide Driver and Traveler Services function to confirm that the parking lot payment transaction has been successfully completed. .

Additional Sizing Assumptions:
SIZE=2;

td-parking_lot_payment_invalid

This data flow is sent to the driver from the Provide Driver and Traveler Services function to indicate that the parking lot payment transaction is invalid. .

Additional Sizing Assumptions:
SIZE=2;

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). .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=4;

td-toll_payment_confirmed

This data flow is sent to the driver from the Provide Driver and Traveler Services function to confirm that the toll payment transaction has been successfully completed. .

Additional Sizing Assumptions:
SIZE=2;

td-toll_payment_invalid

This data flow is sent to the driver from the Provide Driver and Traveler Services function to indicate that the toll payment transaction is invalid. .

Additional Sizing Assumptions:
SIZE=2;

td-traffic_advisory_from_mcv

This data flow is sent to the driver by the Manage Maintenance and Construction function and contains a textual message either warning drivers of maintenance and construction activities or providing instructions to the driver regarding lane availability. .

Additional Sizing Assumptions:
SIZE=32;

td-work_zone_intrusion_alert

This data flow is sent to the driver and represents an auditory or visual alert that the driver's vehicle has intruded upon a work zone, or is about to intrude upon a work zone. The auditory alert may constitute a siren, or other type of alarm. The visual alert could include textual messages, or flashing lights/signage. .

Additional Sizing Assumptions:
SIZE=32;

td-work_zone_intrusion_alert_from_mcv

This data flow is sent to the driver and represents an auditory or visual alert that the driver's vehicle is approaching too close to a maintenance and construction vehicle. The auditory alert may constitute a siren, or other type of alarm. The visual alert could include textual messages, or flashing lights/signage. .

Additional Sizing Assumptions:
SIZE=32;

tea-accident_data

This data flow is sent from the Manage Emergency Services function to the enforcement agency and contains information about a commercial vehicle accident that have been detected by the Manage Commercial Vehicles function. The data in the flow will enable the notified enforcement agency to take the appropriate action regarding the accident. .

Additional Sizing Assumptions:
SIZE=32;

tea-cv_citation_data

This data flow is sent from the Manage Emergency Services function to the enforcement agency and contains information about violations of commercial vehicle electronic credential and tax filing payment procedures etc. that have been detected by the Manage Commercial Vehicles function. The data in the flow will enable the notified enforcement agency to take the appropriate action against those committing the violation. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

tea-emissions_violation_data

This data flow is sent from the Manage Emergency Services function to the enforcement agency and contains information pollution violations that have been detected by processes within the Manage Traffic function. The data in this flow will enable the notified enforcement agency to take the appropriate action against those committing the violations. .

Additional Sizing Assumptions:
SIZE=32;

tea-enforcement_request_from_m_and_c

This data flow contains a request for speed enforcement based upon collecting vehicle speed data that is in excess of the posted speed limit or are creating an unsafe condition based upon the current environmental conditions. The data flow would contain the location where speed enforcement is needed and could contain detailed information of the vehicle speeds collected from sensors at the roadway or a report of aggregated speeds. .

Additional Sizing Assumptions:
SIZE=256;

tea-enforcement_request_from_traffic

This data flow contains a request for speed enforcement based upon collecting vehicle speed data that is in excess of the posted speed limit or are creating an unsafe condition based upon the current environmental conditions. The data flow would contain the location where speed enforcement is needed and could contain detailed information of the vehicle speeds collected from sensors at the roadway or a report of aggregated speeds. .
Additional Sizing Assumptions:
SIZE=256;

tea-fare_collection_roadside_violation_data

This data flow is sent from the Manage Emergency Services function to the enforcement agency responsible for dealing with transit fare collection violations. It contains information about a collection violation that has been detected by the Manage Transit function at the roadside, i.e. the transit stop. The data in the flow will enable the notified enforcement agency to take the appropriate action against those who have committed the violation. .

Additional Sizing Assumptions:
SIZE=32;

tea-fare_collection_vehicle_violation_data

This data flow is sent from the Manage Emergency Services function to the enforcement agency responsible for dealing with transit fare collection violations. It contains information about a collection violation that has been detected by the Manage Transit function on-board the transit vehicle. The data in the flow will enable the notified enforcement agency to take the appropriate action against those who have committed the violation. .

Additional Sizing Assumptions:
SIZE=32;

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 violation. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:

SIZE=32;

tea-speed_sensor_status

This data flow provides a report of the status of a set of speed sensors. The status flow provides the sensor configuration as well as a fault indication. By monitoring this data flow, the receiving process can monitor the health and current status of the field equipment. It consists of the following data items each of which are defined in its own DDE:

list_size + list_size{sensor_identity
+ sensor_device_status}.

Additional Sizing Assumptions:
None

tea-speed_violation_notification

This data flow contains the information needed to identify that a speed violation has occurred. It would contain a timestamp, the speed of the vehicle, and some form of identification of the vehicle, such as a vehicle image of sufficient resolution to uniquely identify the vehicle (e.g. by license plate identification). .

Additional Sizing Assumptions:
SIZE=1E6;

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. .

Additional Sizing Assumptions:
SIZE=32;

tea-traffic_violation_data

This data flow is sent from the Manage Emergency Services function to the enforcement agency and contains information about high occupancy vehicle (hov) lane use that have been detected by processes within the Manage Traffic function. The data in this flow will enable the notified enforcement agency to take the appropriate action against those committing the violations. .

Additional Sizing Assumptions:
SIZE=32;

temo-pollution_data_display

This data flow is sent by the Manage Traffic function to the emissions 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. .

Additional Sizing Assumptions:
SIZE=10240000;

tep-decision_support

This data flow presents information to emergency personnel in the field that is necessary to support an effective incident response. It includes local traffic, road, and weather conditions, hazardous material information, and the current status of resources that have been allocated to the incident .

Additional Sizing Assumptions:
SIZE=16;

tep-emergency_dispatch_order

This data flow is sent to the emergency personnel from the Manage Emergency Services function and is the order for the emergency personnel to proceed. It includes data on the emergency vehicle identity, the incident type and its location. .

Additional Sizing Assumptions:
SIZE=64;

tep-incident_command_information_presentation

This primitive data flow contains information to be presented to local tactical decision-making by emergency personnel at the incident site. It contains information regarding resource status, hazardous material information, and other incident related information. .

Additional Sizing Assumptions:
SIZE=48;

terf-basic_mcv_measures_for_equip_repair

This data flow contains the operational status of various systems on the maintenance and construction vehicle, including brake wear, engine temperature, mileage, tire wear, belt wear, engine and brake system status, and safety system status to be presented to an equipment repair facility. This data flow also includes maintenance and construction vehicle location data. It consists of the following data item which is defined in its own DDE:

vehicle_id_for_mcv
+ vehicle_location_for_mcv
+ vehicle_system_status.

Additional Sizing Assumptions:
None

terf-fleet_maintenance_availability

This data flow is sent from the Manage Maintenance and Construction function to the equipment repair facility and contains information on when the maintenance and construction vehicles will be available for preventive and corrective maintenance. The data flow consists of the following data item which is defined in its own DDE:

fleet_maintenance_availability.

Additional Sizing Assumptions:
None

terf-mdss_recommended_actions

This data flow is sent from the Manage Maintenance and Construction function to the equipment repair facility and contains recommended actions for preparing the equipment, such as reconfiguring the vehicles to support specific maintenance and construction activities. .

Additional Sizing Assumptions:
SIZE=36;

terf-vehicle_utilization_information

This data flow is sent from the Manage Maintenance and Construction function to the equipment repair facility and contains information on maintenance and construction vehicle utilization to assist in predicting vehicle repair or replacement needs. The data flow consists of the following data item which is defined in its own DDE:

vehicle_utilization_information.

Additional Sizing Assumptions:
None

teso-alerts_and_advisories

This data flow is sent to the Emergency System Operator and contains alert notification and advisory information of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction and to be on the look out for certain conditions. .

Additional Sizing Assumptions:
SIZE=256;

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). .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=1E6;

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. .

Additional Sizing Assumptions:
SIZE=1E6;

teso-emergency_request

This data flow is sent to emergency system personnel from the Manage Emergency Services function to inform the personnel that a traveler or transit vehicle operator has requested emergency assistance - either by activation of a silent alarm or through a mayday request. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

teso-image_match

This data flow is sent to emergency system personnel by the Manage Emergency Services function and contains the results of image matching analysis from the secure area served by the local function. This data is sent to the process from another process that performs the image matching analysis. This data flow indicates whether an image has matched the database of known images. The image data is obtained from areas frequented by travelers, and from areas typically away from travelers. The data flow consists of the following data items each of which is defined in its own DDE:

timestamp
+ station_id
+ transit_vehicle_location
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ image_match_confirmation
+ image_id.

Additional Sizing Assumptions:
None

teso-secure_area_sensor_surveillance_information

This data flow is sent from the Manage Emergency Services function to the Emergency System Operator and contains data and status collected from sensor and surveillance equipment in secure areas, including those frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) or areas typically away from travelers (i.e., bridges, tunnels, and other infrastructure). This data flow also includes results of data processing and analysis for detection of threats. .

Additional Sizing Assumptions:
SIZE=256;

teso-wide_area_alert_status

This data flow is sent to the Emergency System Operator and contains the status of an alert notification as well as the information systems used to provide the alert notification. .

Additional Sizing Assumptions:
SIZE=256;

tets-incident_acknowledge

This data flow acknowledges the receipt of incident information, requests additional information, and provides general information on response status. .

Additional Sizing Assumptions:
SIZE=32;

tevp-event_confirmation

This data flow is sent from the Manage Traffic function to event promoters and is the confirmation that the previously submitted details of an event have been accepted as a possible incident. .

Additional Sizing Assumptions:
SIZE=confirmation_flag;

tevp-event_information_request

This data flow is sent by the Provide Driver and Traveler Services function to event promoters to request updated information about events. .

Additional Sizing Assumptions:
SIZE=32;

tevp-planned_event_confirmation

This data flow is sent to the event promoters terminator and is the confirmation that the previously submitted event data has been accepted. .

Additional Sizing Assumptions:
SIZE=64;

tfe-integrity_monitoring_parameters

This data flow contains the configuration parameters for freight equipment. The parameters configure the sensors which are used to monitor integrity characteristics (breach or tamper events) of freight equipment. They also setup the reporting schedule, which can be event driven (i.e. container removed from a chassis), situational based (i.e. every 30 minutes when connected to a commercial vehicle) or a maximum period between transmissions (i.e. 24 hours since last transmission to serve as a 'heartbeat' signal). .

Additional Sizing Assumptions:
SIZE=6;

tfe-operational_monitoring_parameters

This data flow contains the configuration parameters for freight equipment. The parameters configure the sensors which are used to monitor maintenance and operational characteristics of the freight equipment. They also setup the reporting schedule, which can be event driven (i.e. container removed from a chassis), situational based (i.e. every 30 minutes when connected to a commercial vehicle) or a maximum period between transmissions (i.e. 24 hours since last transmission to serve as a 'heartbeat' signal). .

Additional Sizing Assumptions:
SIZE=6;

tffm-assignment_alert

This data flow provides the fleet-freight manager information about an alert due to an assignment mismatch between the driver, commercial vehicle and freight equipment. .

Additional Sizing Assumptions:
SIZE=2;

tffm-confirm_enrollment_data_stored

This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function and contains confirmation that the previously entered enrollment data has been stored in the on-board vehicle unit. .

Additional Sizing Assumptions:
SIZE=2;

tffm-data_input_request

This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function and contains the identities of data items needed for a route request to be made, but which have not been provided by the manager. .

Additional Sizing Assumptions:
SIZE=8;

tffm-driver_route_instructions

This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function. It contains the output of the current instructions that have been loaded into a store for use by a commercial vehicle driver. They will enable the driver to follow a specified route picking up and dropping off cargo along the way. .

Additional Sizing Assumptions:
SIZE=1024;

tffm-enrollment_confirmation

This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function and contains confirmation that a request for the enrollment of a particular class of vehicle and cargo at a particular weight on a particular route has been accepted and includes a list of the required taxes and duties together with their costs. .

Additional Sizing Assumptions:
SIZE=2;

tffm-enrollment_payment_confirmation

This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function and contains confirmation that a payment for the enrollment of a particular class of vehicle and cargo at a particular weight on a particular route has been accepted. .

Additional Sizing Assumptions:
SIZE=2;

tffm-freight_data_input_request

This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function. It contains the status of a freight transportation booking and freight equipment maintenance in which a manager's input is required to proceed. .

Additional Sizing Assumptions:
SIZE=2;

tffm-freight_integrity_alert

This data flow provides the fleet-freight manager information about an alert due to a breach or tamper event involving freight equipment. .

Additional Sizing Assumptions:
SIZE=2;

tffm-freight_route_alert

This data flow provides the fleet-freight manager information about an alert due to a route deviation for freight equipment. .

Additional Sizing Assumptions:
SIZE=2;

tffm-incident_alert

This data flow provides the fleet-freight manager information about an alert due to a breach or tamper event and deviations from a planned route involving a commercial vehicle. It includes information regarding a driver, commercial vehicle and freight equipment assignment mismatches. .

Additional Sizing Assumptions:
SIZE=2;

tffm-other_data_request

This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function and contains the identities of data items needed to complete all the data needed for a route to be stored in the data store of commercial fleet routes, but which have yet to be provided by the manager. .

Additional Sizing Assumptions:
SIZE=8;

tffm-output_tag_data

This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function It contains the output of the current contents of a commercial vehicle's type two tag, produced in response to a previous request from the manager. .

Additional Sizing Assumptions:
SIZE=64;

tffm-preclearance_results

This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function and contains the route number, route details and a list of roadside facilities for which preclearance has been obtained. .

Additional Sizing Assumptions:
SIZE=1024;

tffm-roadside_activity_report

This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function. It contains the output of the commercial vehicle roadside checkstation facility logs showing the activities of a particular carrier, driver and vehicle combination. .

Additional Sizing Assumptions:
SIZE=4096;

tffm-route_data

This data flow is sent to the Fleet-Freight Manager from the Manage Commercial Vehicles function and contains details of a route for a commercial vehicle, together with the location and type of each roadside facility along the route. .

Additional Sizing Assumptions:
SIZE=1024000;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

tfi-fare_payment_violator_data

This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains data about a transit fare payment transaction that was attempted but did not work and is to be used by the Financial Institution. .

Additional Sizing Assumptions:
SIZE=256;

tfi-other_services_payment_request

This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains a request from a traveler (including a user of the transit system) for payment for other (yellow pages) services. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=256;

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 travelers (including users of the transit system). .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

tfi-request_fare_payment

This data flow is sent to the Financial Institution by the Provide Electronic Payment Services function and requests payment of a transit fare. It is sent periodically, e.g. once per day, and requests payment of the transit fare transactions since the previous request. The data flow will include the transit fare cost and credit identity for each transaction. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=256;

tfi-traveler_display_payment_request

This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains a request from a traveler for payment for the update of the digitized map data used as the background for displays of traffic and travel information on a traveler's personal device. .

Additional Sizing Assumptions:
SIZE=32;

tfi-traveler_map_payment_request

This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains a request from a traveler for payment for the update of the navigable map database used for on-line personal guidance. .

Additional Sizing Assumptions:
SIZE=32;

tfi-traveler_other_services_payments_request

This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It a request from a traveler for payment for other (yellow pages) services. .

Additional Sizing Assumptions:
SIZE=32;

tfi-traveler_rideshare_payment_request

This data flow is sent to the financial institution from the Provide Electronic Payment Services function. It contains a request from a traveler for payment for the provision of rideshare services as part of a confirmed trip. .

Additional Sizing Assumptions:
SIZE=32;

tgrs-government_data_report_input

This data flow from the Manage Archived Data function to the Government Reporting Systems terminator. This data flow contains the meta data and data from the archive that can be used to prepare the input to Government reporting systems. The data will allow user defined products to be generated for systems that include Highway Performance Monitoring System (HPMS), Truck Weight Study/VTRIS, National Bridge Inventory, Fatal Accident Reporting System (FARS), Highway Safety Information System (HSIS), Section 15 Transit Data, Motor Carrier Management Information System (MCMIS), Hazardous Materials Incident Reporting System, Grade Crossing Inventory System (GCIS), and Railroad Accident/Incident Reporting System (RAIRS; grade crossing portion). .

Additional Sizing Assumptions:
SIZE=1024;

threat_analysis_parameters

This data flow is sent from a process that interfaces with center personnel to another process within the Manage Emergency Services function, and contains processing parameters to guide the automated analysis of data for detection of threats. .

Additional Sizing Assumptions:
SIZE=16;

threat_analysis_results

This data flow contains detailed results of threat analysis performed on data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and emergency centers outside the local jurisdiction. This data flow includes the analysis input parameters, the sources of the collected data and timestamps, as well as the final analysis results. .

Additional Sizing Assumptions:
SIZE=64;

threat_and_infrastructure_info_for_traffic

This data flow is used to send threat information and infrastructure integrity status data from the Manage Emergency Services function to the Manage Traffic function. The data flow consists of the following items each of which is defined in its own DDE:

threat_info_for_traffic
+ infrastructure_integrity_status_for_traffic.

Additional Sizing Assumptions:
None

threat_and_infrastructure_info_for_transit

This data flow is used to send threat information and infrastructure integrity status data from the Manage Emergency Services function to the Manage Transit function. The data flow consists of the following items each of which is defined in its own DDE:

threat_info_for_transit
+ infrastructure_integrity_status_for_transit.

Additional Sizing Assumptions:
None

threat_data_for_archive

This data flow contains information about threats detected in the transportation network and results of threat analysis performed on that data, for archival. These threats are based on analysis of data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and emergency centers outside the local jurisdiction. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area
+ threat_duration
+ threat_analysis_results}.

Additional Sizing Assumptions:
None

threat_detected

This data flow contains information about an actual threat detected in the transportation network for use is predicting potential incidents. This threat is based on sensor and surveillance data, and analysis of that data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and emergency centers outside the local jurisdiction. This data flow includes the type of threat detected, the location, and any other details pertinent to the threat.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area
+ threat_duration}.

Additional Sizing Assumptions:
None

threat_duration

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

duration.

Additional Sizing Assumptions:
None

threat_info_for_maint

This data flow is sent from the Manage Emergency Services function to the Manage Maintenance and Construction function and contains information about threats detected in the transportation network. This threat is based on analysis of data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and emergency centers outside the local jurisdiction. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area
+ threat_duration}.

Additional Sizing Assumptions:
None

threat_info_for_traffic

This data flow is sent from the Manage Emergency Services function to the Manage Traffic function and contains information about threats detected in the transportation network. This threat is based on analysis of data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and emergency centers outside the local jurisdiction. This data flow includes a list of the types of threats detected,

the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area
+ threat_duration}.

Additional Sizing Assumptions:
None

threat_info_for_transit

This data flow is sent from the Manage Emergency Services function to the Manage Transit function and contains information about threats detected in the transportation network. This threat is based on analysis of data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and emergency centers outside the local jurisdiction. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area
+ threat_duration}.

Additional Sizing Assumptions:
None

threat_info_to_operator

This data flow is sent from the Manage Emergency Services function to another process for use by center personnel and contains information about threats detected in the transportation network. This threat is based on analysis of data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and emergency centers outside the local jurisdiction. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area
+ threat_duration}.

Additional Sizing Assumptions:
None

threat_information_for_dissemination

This data flow contains information about threats detected in the transportation network. This threat is based on analysis of data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and emergency centers outside the local jurisdiction. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area

+ threat_duration}.

Additional Sizing Assumptions:
None

threat_sensor_control

This data flow provides control commands for threat sensors (e.g., thermal, acoustic, radiological, chemical) located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure. etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ threat_sensor_control_data}.

Additional Sizing Assumptions:
None

threat_sensor_control_data

This data flow provides control commands for a single threat sensor. These commands can be used to configure the sensor and to define processing parameters, including definition of thresholds for threat detection. .

Additional Sizing Assumptions:
SIZE=32;

threat_sensor_data

This data flow contains actual sensor readings collected from threat sensors (e.g., thermal, acoustic, radiological, chemical) located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure. etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ threat_sensor_data_collected}.

Additional Sizing Assumptions:
None

threat_sensor_data_collected

This data flow represents the output of a single threat sensor (e.g., thermal, acoustic, radiological, chemical) located in a secure area. .

Additional Sizing Assumptions:
SIZE=32;

threat_sensor_data_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from threat sensors (e.g., thermal, acoustic, radiological, chemical) located in areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity

+ threat_sensor_data_collected.

Additional Sizing Assumptions:
None

threat_sensor_fault_data

This data flow is used to report the status of a threat sensor, providing the sensor configuration as well as a fault indication. .

Additional Sizing Assumptions:
SIZE=24;

threat_sensor_processed_data

This data flow is used within the Manage Emergency Services function and contains the data produced by processing threat sensor data (e.g., thermal, acoustic, radiological, chemical). It is analyzed, correlated with other sensor data, and used to detect potential threats in secure areas. .

Additional Sizing Assumptions:
SIZE=256;

threat_sensor_status

This data flow is used within the Manage Emergency Services function to report the status of a threat sensor (e.g., thermal, acoustic, radiological, chemical) located in secure areas typically away from travelers, such as bridges, tunnels, roadway infrastructure, etc. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ threat_sensor_fault_data}.

Additional Sizing Assumptions:
None

threat_severity

This data flow defines the severity of a threat. .

Additional Sizing Assumptions:
SIZE=3;

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). .

Additional Sizing Assumptions:
SIZE=1;

tifd-booking_information

This data flow contains information regarding a freight transportation booking and the assigned driver and vehicle scheduled to transport the freight. The data flow consists of the following data items each of which is defined in its own DDE:

cv_trip_identity
+ cv_driver_number
+ cv_driver_identity_characteristic_key
+ cv_route_number
+ cv_vehicle_number
+ freight_shipment_information
+ freight_equipment_number.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=64;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

tifd-intermodal_freight_event_confirmation

This data flow is sent from the Manage Traffic function to the Intermodal Freight Depot terminator and is the confirmation that the previously submitted details of the movement of intermodal freight traffic have been accepted as a possible incident. .

Additional Sizing Assumptions:
SIZE=64;

tifd-traffic_data_for_intermodal_freight

This data flow contains information about environmental conditions, current incidents on the road, and traffic flow state to be used by the Intermodal Freight Depot terminator. The data flow consists of the following data items each of which is defined in its own DDE:

roadway_environment_conditions
+ traffic_flow_state
+ link_state_data
+ current_incidents_data.

Additional Sizing Assumptions:
None

tifs-booking_response

This data flow contains the response to a freight-booking request. It provides the shipper information about the driver and commercial vehicle that will be transporting the freight. The data flow consists of the following data items each of which is defined in its own DDE:

cv_trip_identity
+ cv_vehicle_number
+ cv_driver_number.

Additional Sizing Assumptions:
None

tifs-border_clearance_status

This data flow is sent to the intermodal freight shipper system from the Manage Commercial Vehicle function. It contains the status of a commercial freight shipment moving across an international border. This data flow consists of the following data items each of which is defined in its own DDE:

cvo_border_clearance_info
+ cvo_border_status_from_other_cvas.

Additional Sizing Assumptions:
None

tifs-freight_breach

This data flow provides an Intermodal Freight Shipper breach or tamper event data for freight equipment. The data flow consists of the following data items each of which is defined in its own DDE:

freight_breach.

Additional Sizing Assumptions:
None

tifs-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. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE = 2;

time_period

This data flow is used within the Provide Driver and Traveler Services function to define the time period over which data about the use of a route segment is being provided. .

Additional Sizing Assumptions:
SIZE=1;

time_to_closing

This data flow provides the actual computed time to closing for an active grade crossing. .

Additional Sizing Assumptions:
SIZE=128;

timestamp

This data flow represents the time and date at which some piece of ITS data has been measured, sensed, or created. It consists of the following data items each of which are defined in its own DDE:

time + date.

Additional Sizing Assumptions:
None

tispo-archive_status

This data flow is sent to the ISP system operator by the Provide Driver and Traveler Services function and contains the status received by Provide Driver and Traveler Services from the Manage Archived Data function after data was sent from Provide Driver and Traveler Services function to the Manage Archived Data function for archival. The status may be good (the data was correct and received without error) or bad (errors were either found in the data itself or during the transmission of the data). .

Additional Sizing Assumptions:
SIZE=32;

tispo-broadcast_data_parameters_output

This data flow is sent to the ISP operator by the Provide Driver and Traveler Services function. It contains output of the parameters used in wide area information broadcast and is a result of an output request from the operator. .

Additional Sizing Assumptions:
SIZE=2048;

tispo-route_selection_parameters

This data is sent to the ISP Operator from the Provide Driver and Traveler Services function. It contains output of the parameters used by the route selection processes to best determine the routes used for travelers proposed trips

and for on-line vehicle guidance. The output may be in audible, visual or hardcopy form and will require no further processing to be understood by the operator. .

Additional Sizing Assumptions:
SIZE=64;

tispo-trip_planning_parameters

This data flow is sent to the ISP Operator from the Provide Driver and Traveler Services function. It contains output of the parameters used by the trip planning processes to best determine the routes for travelers. The output may be in audible, visual or hardcopy form and will require no further processing to be understood by the operator. .

Additional Sizing Assumptions:
SIZE=64;

tispo-yellow_pages_operator_information

This data flow is sent to the ISP operator Manage Yellow Pages Services function. It contains output of the parameters used to control the interface to the travelers as well as the yellow pages service providers. This information may include the types of information being provided, the formats required, payment required for services, frequency of updates to the data, etc. This output is the result of requests made by the operator. .

Additional Sizing Assumptions:
SIZE=2048;

tmc_identity

This data item is used within the Manage Traffic function and defines the logical identifier of an interfacing peer Traffic Management Center (TMC) to share traffic data and system status. Other centers may be on-line to coordinate wide area traffic operations to promote traffic mobility and coordination. Security safeguards are employed to ensure unauthorized entities cannot masquerade as a valid TMC. .

Additional Sizing Assumptions:
SIZE=4;

tmc_list

This data flow is used within the Manage Traffic function and contains a list of Traffic Management Centers (TMC's) from which the accompanying traffic data has been obtained for use by the local TMC. The data flow consists of the following data items each of which is defined by its own DDE:

list_size
+ 1{tmc_identity}list_size.

Additional Sizing Assumptions:
SIZE=list_size+ADJACENT_TMS{tmc_identity};

tmcas-m_and_c_administrative_request

This data flow is sent from the Maintenance and Construction function to the Maintenance and Construction Administrative Systems, and contains a request for administrative information that could affect scheduling of maintenance and construction activities, such as regulations, personnel qualifications, supply purchase request status, and the like. .

Additional Sizing Assumptions:
SIZE=8;

tmcas-m_and_c_work_performance

This data flow is sent from the Maintenance and Construction function to the Maintenance and Construction Administrative Systems, and contains project status and work performance information to support contract administration. .

Additional Sizing Assumptions:
SIZE=64;

tmcas-resupply_request

This data flow is sent from the Manage Maintenance and Construction function to the Maintenance and Construction Administrative Systems, and contains requests for resupply of equipment and consumables. .

Additional Sizing Assumptions:
SIZE=32;

tmcas-work_zone_info

This data flow contains a summary of maintenance and construction work zone activities that have been tailored for providing to a maintenance and construction administrative system. This information includes the nature of the maintenance or construction activity, location, expected time(s) and duration of work zone activity, and work zone resource status. This data flow consists of data from the following data item which is defined in its own DDE:

work_zone_data_for_status.

Additional Sizing Assumptions:
None

tmccp-alert_and_threats_info

This data flow is sent to the Maintenance and Construction Center Personnel to provide notification of potential threats or a major emergency such as a natural or man-made disaster, civil emergency, or child abduction. .

Additional Sizing Assumptions:
SIZE=32;

tmccp-archive_status

This data flow is sent to the maintenance and construction center personnel from the Manage Maintenance and Construction function and contains the status received by this function from the Manage Archived Data function after data was sent for archival. The status may be good (the data was correct and received without error) or bad (errors were either found in the data itself or during the transmission of the data). .

Additional Sizing Assumptions:
SIZE=32;

tmccp-auto_treat_status

This data flow contains the operational status of automated treatment devices located at the roadway including records of equipment activation. By monitoring this data flow, the center personnel can track the occurrences of automated treatment. .

Additional Sizing Assumptions:
SIZE=16;

tmccp-emergency_response_plan

This data flow is sent from the Manage Maintenance and Construction function to the Maintenance and Construction Center Personnel to present the data for the coordination of response plans between the M&C function and the Emergency management function for disasters and evacuations. This data flow is used to coordinate disaster response and recovery plans with maintenance and construction. It contains information regarding the nature of the disaster, and the preplanned response and recovery plan for maintenance. Given this information, maintenance can provide a plan that it will use that is appropriate for the given disaster. .

Additional Sizing Assumptions:
SIZE=256;

tmccp-env_and_weather_data

This data flow represents the environmental and weather information that is displayed to the maintenance and construction center personnel. The information content of the display is comprised of the following data item which is defined in its own DDE:

env_and_weather_data.

Additional Sizing Assumptions:
None

tmccp-env_info_for_dissemination

This data flow represents the display to the maintenance and construction center personnel of environmental and road weather information that has been formatted for distribution to organizations external to the manage maintenance and construction function. .

Additional Sizing Assumptions:
SIZE=64;

tmccp-m_and_c_activity_status

This data flow is sent to the Maintenance and Construction Center Personnel and contains the current status of M&C and activities, including work status, materials availability, vehicle fleet status, asset status, field equipment maintenance status, etc. This status is created for output to the M&C personnel and it consists of the following data item which is defined in its own DDE:

m_and_c_activity_status.

Additional Sizing Assumptions:
None

tmccp-mdss_recommended_actions

This data flow is sent to the Maintenance and Construction Center Personnel and contains a recommended course of action generated by the automated Maintenance Decision Support System, based on processing parameters input by the center personnel. The recommended actions result from inputs including environmental conditions, road network information, maintenance and construction activity status, and available resources. .

Additional Sizing Assumptions:
SIZE=256;

tmccp-processed_env_info

This data flow represents the display of processed environmental and road weather information to the maintenance and construction center personnel. The data displayed is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. Road condition observations and road condition predictions will be displayed as well as road weather forecasts and road weather observations. The information displayed is comprised of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

tmccp-resource_request

This data flow is sent from the Manage Maintenance and Construction function to the Maintenance and Construction Center Personnel to officially request the use of resources. Although primarily requested on behalf of other agencies (such as emergency, traffic, etc.), it could also be used to assist in prioritizing the use of resources within maintenance and construction. This data flow contains a request and a list of the resources requested, including equipment, maintenance and construction vehicles, and materials. .

Additional Sizing Assumptions:
SIZE=32;

tmccp-scheduled_work_plan

This data flow is used within the Manage Maintenance and Construction function and contains information for use by center personnel about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

scheduled_work_plan_for_personnel.

Additional Sizing Assumptions:
None

tmccp-vehicle_fleet_status

This data flow is sent to the Maintenance and Construction Center Personnel and contains information from the fleet management function concerning the status of its fleet of vehicles. It includes for each vehicle the type, equipment configuration, location, operational status, maintenance record, work activity status, and crew/operator status. Additionally, incident information and road network information are included. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_fleet_status_for_personnel
+ mcv_tracking_data_for_personnel.

Additional Sizing Assumptions:
None

tmccp-vehicle_speed_data

This data flow is sent to the Maintenance and Construction Center Personnel and contains vehicle speed data for display. The speed data could be actual sensor data, or data that has been processed or aggregated. It consists of the following data item which is defined in its own DDE:

speed_data_for_m_and_c_display.

Additional Sizing Assumptions:
None

tmccp-view_of_road_network

This data flow is sent to the Maintenance and Construction Center Personnel and contains a view of the road network appropriate for supporting the maintenance and construction personnel. This information represents a consolidation of inputs from transit, emergency, and private vehicle probes, road network information including travel times, route usage, and incidents and incident response, and environmental information collected from the Manage Traffic and Manage Emergency Services functions. The data flow consists of the following item which is defined in its own DDE:

m_and_c_view_of_road_network.

Additional Sizing Assumptions:
None

tmccp-work_zone_images_for_display

This data flow contains digitized images of activities in work zones for display to the maintenance and construction center personnel. This data flow consists of data from the following data items which are defined in their own DDE:

work_zone_images
+ fomcm-work_zone_images
+ work_zone_intrusion_video_image.

Additional Sizing Assumptions:
None

tmccp-work_zone_info

This data flow contains a summary of the work zone information being provided to other organizations. The data flow represents the information that is viewed on a display by the maintenance and construction center personnel. .

Additional Sizing Assumptions:
SIZE=1E6;

tmcfp-dispatch_info

This data is sent to the Maintenance and Construction Field Personnel and contains dispatch information from the vehicle fleet manager to the vehicle operator, under normal and winter conditions. The data flow consists of the following data item which is defined in its own DDE:

dispatch_orders_to_mcv
+ winter_dispatch_orders_to_mcv.

Additional Sizing Assumptions:
None

tmcfp-environmental_sensor_info

This data flow provides information from environmental sensors on-board a maintenance and construction vehicle for presentation to the Maintenance and Construction Field Personnel. The environmental sensor information may come from the vehicle operated by the Maintenance and Construction Field Personnel or from another maintenance and construction vehicle. It consists of the following data items each of which is defined in its own DDE:

environmental_sensor_data_on_board
+ environmental_sensor_fault_data_on_board
+ environmental_sensor_status_on_board
+ fomcv-env_conditions.

Additional Sizing Assumptions:
None

tmcfp-materials_status_onboard

This data flow to the Maintenance and Construction Field Personnel contains information about the types of materials stored on-board the vehicle and the materials usage rates. It consists of the following data item which is defined in its own DDE:

materials_status.

Additional Sizing Assumptions:
None

tmcfp-mcv_operational_data

This data flow is sent to the Maintenance and Construction Field Personnel to inform them about the maintenance and construction activity performed by the vehicle. Operational data includes the operational state of the maintenance equipment (e.g., blade up/down, spreader pattern, equipment configuration) and a record of the actual work performed. It consists of the following data item which is defined in its own DDE:

operational_data_for_mcv.

Additional Sizing Assumptions:
None

tmcfp-mdss_recommended_actions

This data flow to the Maintenance and Construction Field Personnel contains the recommended roadway treatment actions output from the maintenance decision support system function. .

Additional Sizing Assumptions:
SIZE=64;

tmcfp-road_network_info

This data flow is sent to the Maintenance and Construction Field Personnel and contains a view of the road network for the vehicle operator. This information includes travel times, route usage, and incidents and incident response, and environmental information. The data flow consists of the following item which is defined in its own DDE:

road_network_info_to_mcv
+ fomcv-env_conditions.

Additional Sizing Assumptions:
None

tmcfp-suggested_route

This data flow to the Maintenance and Construction Field Personnel provides a suggested route for a dispatched vehicle driver that takes into account current traffic conditions, the current location and routes of other vehicles, and any road restrictions. This data flow identifies the maintenance and construction vehicle and provides turn-by-turn route information. The data flow consists of the following data items each of which is defined in its own DDE:

suggested_route_to_mcv.

Additional Sizing Assumptions:
None

tmcfp-vehicle_condition_status

This data flow is sent to the Maintenance and Construction Field Personnel and contains information about the vehicle's current location and condition, including mileage, engine and system status, safety system status, etc. It consists of the following data items each of which is defined in its own DDE:

vehicle_location_for_mcv_operator
+ basic_mcv_measures_for_mcv_operator.

Additional Sizing Assumptions:
None

tmcfp-work_zone_intrusion_alert

This data flow is sent to the maintenance and construction field personnel and represents an auditory or electronic alert that a vehicle has intruded upon a work zone, or is about to intrude upon a work zone. The auditory alert may constitute a siren, or other type of alarm. The electronic alert could cause an alert on a device carried by the personnel. .

Additional Sizing Assumptions:
SIZE=16;

tmcfp-work_zone_intrusion_alert_from_mcv

This data flow is sent to the maintenance and construction field personnel and represents an auditory or electronic alert that a vehicle has intruded upon a work zone, is about to intrude upon a work zone. The alert can also be provided based upon a detection on board the maintenance and construction vehicle that another vehicle is approaching too quickly, or is too close for safety. The auditory alert may constitute a siren, or other type of alarm. The electronic alert could cause an alert on a device carried by the personnel. .

Additional Sizing Assumptions:
SIZE=16;

tmcfp-work_zone_intrusion_warning

This data flow contains a warning from a roadside device to maintenance and construction field personnel that a work zone intrusion has been detected. The warning could be an auditory alarm that warns any personnel nearby. Alternatively the warning could be a data communication to devices carried by the personnel. This warning could be to all personnel within a radius of the device, or it could be directed to specific personnel who have been judged to be at risk based upon knowledge of their location and knowledge of the location of the intrusion. .

Additional Sizing Assumptions:
SIZE=8;

tmcfp-work_zone_on_board_intrusion_warning

This data flow contains a warning from on board a maintenance and construction vehicle to a maintenance and construction field personnel that a work zone intrusion has been detected. The warning could be an auditory alarm sounded from the vehicle that warns any personnel nearby. Alternatively the warning could be a data communication to devices carried by the personnel. This warning could be to all personnel within a radius of the

vehicle, or it could be directed to specific personnel who have been judged to be at risk based upon knowledge of their location and knowledge of the location of the intrusion. .

Additional Sizing Assumptions:
SIZE=8;

tmcfp-work_zone_status_presentation

This data flow represents the presentation of work zone status information to a maintenance and construction field personnel. The status can be generated locally (from devices on the maintenance and construction vehicle) or the status can originate from other work zones, or other areas of the current work zone. The work zone status can include on-board device status, field personnel status, maintenance and construction vehicle status, or activity status. It consists of the following data items each of which is defined in its own DDE:

work_zone_status_for_display
+ status_of_other_work_zones.

Additional Sizing Assumptions:
None

tm-emergency_information

This data flow provides information about current incidents. It contains the following data item which is defined in its own DDE:

incident_details.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1024;

tm-incident_information

This data flow contains data on current incidents in a form which will be readily understood by Media Systems. .

Additional Sizing Assumptions:
SIZE=1024000;

tm-m_and_c_work_plans_for_media

This data flow is sent from the Manage Maintenance and Construction function to the Media. It contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=4;

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). .

Additional Sizing Assumptions:
SIZE=32;

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). .

Additional Sizing Assumptions:
SIZE=32;

tmmc-stop_alternate_mode_at_highways

This data flow is sent to the multimodal crossings from the Manage Traffic function to indicate that the alternate mode traffic must if possible be stopped, to enable the crossing to be used by emergency vehicles. Output of this data does not guarantee that the emergency vehicle(s) will have preemption, since in some cases it may be too late to stop the alternate mode traffic. .

Additional Sizing Assumptions:
SIZE=4;

tmmc-stop_alternate_mode_at_roads

This data flow is sent to the multimodal crossings from the Manage Traffic function to indicate that the alternate mode traffic must if possible be stopped, to enable the crossing to be used by emergency vehicles. Output of this data does not guarantee that the emergency vehicle(s) will have preemption, since in some cases it may be too late to stop the alternate mode traffic. .

Additional Sizing Assumptions:
SIZE=4;

tm-pollution_data

This data flow provides information on current pollution data in a form which will be readily understood by the Media. .

Additional Sizing Assumptions:
SIZE=4;

tm-road_weather_info

This data flow contains environmental and road weather information that has been formatted for distribution to the Media terminator. The data may be filtered or aggregated prior to this formatting. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

tm-roadway_maint_status_for_media

This data flow is sent from the Manage Maintenance and Construction function to the Media and contains information summarizing the current roadway maintenance activities. This also includes maintenance fleet operations affecting the road network such as winter maintenance (snow plow schedules and status). The data flow consists of the following data item which is defined in its own DDE:

current_roadway_maintenance_status.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

tms_requests

This data flow is generated in response to a need for hri status for traffic management. .

Additional Sizing Assumptions:
SIZE = 128;

tm-traffic_data

This data flow gives information on a particular current traffic situation in a form which will be readily understood by Media Systems. .

Additional Sizing Assumptions:
SIZE=1024;

tm-traffic_information

This data flow gives information on a particular current traffic situation in a form which will be readily understood by Media Systems. .

Additional Sizing Assumptions:
SIZE=1024000;

tm-transit_emergency_information

This data flow provides information to the media that an emergency has occurred within a transit vehicle. The location of the transit vehicle and details of the emergency will be included in the information, subject to any constraints applied by the transit media information parameters. These parameters will also control the style and format of the way in which the information is presented to the media. .

Additional Sizing Assumptions:
SIZE=10530;

tm-transit_incident_information

This data flow contains information about an incident that has occurred within part of the transit operations network, e.g. transit stop or mode interchange point. The location and details of the incident will be included in the information, subject to any constraints applied by the transit media information parameters. These parameters will also control the style and format of the way in which the information is presented to the media. .

Additional Sizing Assumptions:
SIZE=10530;

tm-transit_schedule_deviations_to_media

This data flow contains details of deviations from schedule of regular transit services. The information will enable the media to broadcast the details to travelers via such things as local radio, bulletin boards, etc. .

Additional Sizing Assumptions:
SIZE=256;

tm-transit_vehicle_deviations

This data flow contains details of deviations from schedule of specific transit vehicles, or routes. The information will enable the media to broadcast the details to travelers via such things as local radio, bulletin boards, etc. .

Additional Sizing Assumptions:
SIZE=256;

tm-traveler_information_request

This data flow is sent to the media from the Provide Driver and Traveler Services function and contains a request for any information that the media has that might be of interest to travelers planning trips. This may include but not be limited to such things as special events. sports fixtures, etc. .

Additional Sizing Assumptions:
SIZE=8;

tmtsp-air_services_request

This data flow is sent to the multimodal transportation service provider from the Provide Driver and Traveler Services function and contains a request for details of the regular and charter air services available to move travelers. .

Additional Sizing Assumptions:
SIZE=64;

tmtsp-confirm_multimodal_service

This data flow is sent to the multimodal transportation service provider from the Provide Driver and Traveler Services function and contains a request for provision of an alternate mode service as part of a traveler's proposed trip. .

Additional Sizing Assumptions:
SIZE=64;

tmtsp-ferry_services_request

This data flow is sent to the multimodal transportation service provider from the Provide Driver and Traveler Services function and contains a request for details of the sea and river ferry services available to move travelers. .

Additional Sizing Assumptions:
SIZE=64;

tmtsp-m_and_c_work_plans_for_mtsp

This data flow is sent from the Manage Maintenance and Construction function to the Multimodal Transportation Service Provider. It contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_work_plans.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

tmtsp-non_motorized_services_request

This data flow is sent to the multimodal transportation service provider from the Provide Driver and Traveler Services function and contains a request for details of the non-motorized traveler services available to move travelers. .

Additional Sizing Assumptions:
SIZE=64;

tmtsp-rail_services_request

This data flow is sent to the multimodal transportation service provider from the Provide Driver and Traveler Services function and contains a request for details of the heavy rail services (i.e. those which do not form part of a transit operation) available to move travelers. .

Additional Sizing Assumptions:
SIZE=64;

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 transit vehicle at the next modal interchange point. The data is intended to enable the coordination of services between the multimodal and regular transit operations. .

Additional Sizing Assumptions:
SIZE=512;

tmtsp-transit_arrival_deviations

This data flow is sent to the multimodal transportation service provider from the Manage Transit function and contains details of the changes that are currently expected to the arrival time of transit vehicles at the modal interchange point(s). The data is intended to enable the coordination of services between the multimodal and regular transit operations. .

Additional Sizing Assumptions:
SIZE=512;

tmtsp-transit_service_data

This data flow is sent to the multimodal transportation service provider from the Manage Transit function and contains details of the regular transit services provided by the local transit operation, including transfer points. The data is intended for use in the coordination of services between the multimodal and regular transit operations. This data flow contains the following item which is defined in its own DDE:

transit_transfer_cluster_list.

Additional Sizing Assumptions:
None

tmup-emergency_route_map_request

This data flow is sent to the map update provider from the Manage Emergency Services function. It contains a request for an update to the digitized map data for displays that can be used for planning routes for emergency vehicles. .

Additional Sizing Assumptions:
SIZE=2;

tmup-fleet_map_update_request

This data flow is sent to the map update provider from the Manage Commercial Vehicle function and contains a request for an update of the map database used for generating new commercial vehicle routes and as a background to displays of fleet services requested by the commercial vehicle fleet manager. .

Additional Sizing Assumptions:
SIZE=2;

tmup-map_archive_request

This data flow from the Manage Archived Data function to the Map Update Provider contains the request for data collected and stored by the terminator that may be of interest to archived data users systems that is not included in data from sources within the ITS functions. This data flow includes request for a catalog of the information available as well as the request for the data itself. This data flow consists of the following items each of which is defined in its own DDE:

map_archive_catalog_request
+ map_archive_data_request.

Additional Sizing Assumptions:
None

tmup-map_archive_status

This data flow is sent from the Manage Archived Data function to the Map Update Provider. It is the status returned when imported map archive data is sent from the terminator to the Manage Archived Data function. .

Additional Sizing Assumptions:
SIZE=32;

tmup-map_static_data

This data flow is sent to the map update provider and contains a new set of static data or a set of transit route data. This will be used by the map provider in the preparation of a new set of digitized map data which can then be used by this and other functions within ITS. .

Additional Sizing Assumptions:
SIZE=10240000;

tmup-request_demand_display_update

This data flow is sent to the map update provider from the Manage Demand facility within the Manage Traffic function. It contains a request for an update to the digitized map data for displays that can be used as background for the output of data on traffic and travel demand levels. .

Additional Sizing Assumptions:
SIZE=2;

tmup-request_emergency_display_update

This data flow is sent to the map update provider from the Manage Emergency Services function. It contains a request for an update to the digitized map data for displays that can be used as the background for the output of data incidents and emergencies to the emergency system operator. .

Additional Sizing Assumptions:
SIZE=2;

tmup-request_incident_display_update

This data flow is sent to the map update provider from the Display and Update Incident Data facility within the Manage Traffic function. It contains a request for an update to the digitized map data for displays that can be used as background for the output of data on current incidents and planned events. .

Additional Sizing Assumptions:
SIZE=2;

tmup-request_m_and_c_display_update

This data flow is sent to the Map Update Provider from the Manage Maintenance and Construction function to request an update of the digitized map data used as a background for displays of data about maintenance and construction activities. .

Additional Sizing Assumptions:
SIZE=4;

tmup-request_m_and_c_route_map

This data flow is sent to the Map Update Provider from the Manage Maintenance and Construction function to request an update of the digitized map data used as a background to assist in maintenance and construction vehicle routing. .

Additional Sizing Assumptions:
SIZE=4;

tmup-request_other_routes_map_update

This data flow is sent to the map update provider by the Provide Driver and Traveler Services function and contains a request for a new copy of the digitized map data used by the process that selects other, i.e. non-vehicle and non-transit, routes for travelers. .

Additional Sizing Assumptions:
SIZE=2;

tmup-request_pollution_display_update

This data flow is sent to the map update provider from the Manage Emissions facility within the Manage Traffic function. It contains a request for an update to the digitized map data for displays that can be used as background for the output of data on the levels of various atmospheric pollutants. .

Additional Sizing Assumptions:
SIZE=2;

tmup-request_route_selection_map_update

This data flow is sent to the map update provider by the Provide Driver and Traveler Services function and contains a request for a new copy of the digitized map data used by the process that selects vehicle based routes for travelers and drivers. .

Additional Sizing Assumptions:
SIZE=2;

tmup-request_traffic_display_update

This data flow is sent to the map update provider from the Display and Output Traffic Data facility within the Manage Traffic function. It contains a request for an update to the digitized map data for displays that can be used as background for the output of data on current and predicted traffic levels. .

Additional Sizing Assumptions:
SIZE=2;

tmup-request_traveler_display_update

This data flow is sent to the map update provider from the Provide Driver and Traveler Services function. It contains a request for an update to the digitized map data used for displays that can be output as background for traffic, trip and travel information for use by travelers at kiosks. It must include the identity of the kiosk from which the request has originated so that the map update provider can determine the map data to supply that will be relevant to the area in which the kiosk is located. .

Additional Sizing Assumptions:
SIZE=2;

tmup-request_traveler_display_updates_FB

This data flow is sent to the map update provider from the Provide Driver and Traveler Services function and contains a request for an update to the digitized map data used for displays that are output to the traveler at a traveler's personal device. It consists of the following data items each of which is defined in its own DDE:

tmup-request_traveler_personal_display_update
+ tmup-request_traveler_personal_display_update_cost
+ tmup-traveler_map_update_cost_request
+ tmup-traveler_map_update_request.

Additional Sizing Assumptions:
None

tmup-request_traveler_personal_display_update

This data flow is sent to the map update provider from the Provide Driver and Traveler Services function. It contains a request for an update to the digitized map data used for displays that can be output as background for traffic, trip and travel information for use by a traveler at a personal device. It consists of the following data items each of which is defined in its own DDE. The map update provider is expected to use them as a means of obtaining payment for providing the map data, but not for 'tuning' the data so that it will be relevant to the area in which the kiosk is located since there is no knowledge of where the device may be used.

credit_identity
+ traveler_identity.

Additional Sizing Assumptions:
None

tmup-request_traveler_personal_display_update_cost

This data flow is sent to the map update provider from the Provide Driver and Traveler Services function and contains a request for the cost of an update to the digitized map data used for providing the background to displays of traffic and travel information on a traveler personal device. .

Additional Sizing Assumptions:
SIZE=2;

tmup-route_restrictions

This data flow contains information about road segments and areas (surrounded by road segments) that do not allow the transport of security sensitive hazmat cargoes or may indicate other restrictions (such as height or weight limits). These restrictions are intended to be used in the preparation of map databases that might then be used to prepare routes for commercial vehicles. The data flow consists of the following data item which is defined in its own DDE:

hazmat_route_restrictions
+ current_asset_restrictions.

Additional Sizing Assumptions:
None

tmup-transit_map_update_request

This data flow is sent to the map update provider from the Manage Transit function and contains a request for an update of the map database used for generating new transit routes and as a background to displays of transit services requested by the transit system operator. .

Additional Sizing Assumptions:
SIZE=2;

tmup-traveler_map_update_cost_request

This data flow is sent to the map update provider from the Provide Driver and Traveler Services function and contains a request for the cost of an update to the navigable map database used for providing traveler personal on-line guidance. .

Additional Sizing Assumptions:
SIZE=2;

tmup-traveler_map_update_request

This data flow is sent to the map update provider from the Provide Driver and Traveler Services function and contains a request for an update of the digitized map database used for guiding travelers on their selected routes. .

Additional Sizing Assumptions:
SIZE=2;

tmup-vehicle_map_update_cost_request

This data flow is sent to the map update provider from the Provide Driver and Traveler Services function and contains a request for the cost of an update to the navigable map database used for providing in-vehicle on-line guidance. .

Additional Sizing Assumptions:
SIZE=2;

tmup-vehicle_map_update_request

This data flow is sent to the map update provider from the Provide Driver and Traveler Services function and contains a request for an update of the navigable map database used for providing in-vehicle on-line guidance. .

Additional Sizing Assumptions:
SIZE=2;

tm-work_zone_images

This data flow contains analog or digitized video images of a work zone that are being released for external viewing, in this case to the media. .

Additional Sizing Assumptions:
SIZE=IMAGE_LARGE;

tm-work_zone_info

This data flow contains a summary of maintenance and construction work zone activities that have been tailored for providing to the media. This information includes the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. The data flows also contains work zone resource status. This data flow consists of data from the following data item which is defined in its own DDE:

work_zone_data_for_status.

Additional Sizing Assumptions:
None

To_Alerting_and_Advisory_Systems

This data flow is sent to the Alerting and Advisory Systems terminator and consists of the following items each of which is defined in its own DDE:

taas-traveler_image
+ taas-traveler_image_matching_details
+ taas-threat_info
+ taas-threat_info_from_cvo
+ taas-threat_info_from_freight
+ taas-threat_data_for_analysis.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

To_Asset_Management

This data flow is sent to Asset Management and contains information regarding changes to the inventory of maintenance and construction assets (such as pavement, bridges, signs, etc.) including repairs that have been made and detection of faults by infrastructure sensors. It also contains requests for new asset data to be archived, and status on past archival transfers. It consists of the following data items each of which is defined in its own DDE:

tam-asset_status_update_for_asset_mgmt
+ tam-infrastructure_data_for_analysis
+ tam-asset_archive_status
+ tam-archive_request.

Additional Sizing Assumptions:
None

To_Basic_Commercial_Vehicle

This data flow is sent to the non-ITS equipment on a commercial vehicle and contains control data for disabling the vehicle in emergencies. It consists of the following data item which is defined in its own DDE:

tbcv-disable_vehicle.

Additional Sizing Assumptions:
None

To_Basic_MC_Vehicle

This data flow is sent to the non-ITS systems on-board a maintenance and construction vehicle and is used to control the vehicle equipment. It includes control data to support materials applications and other functions depending upon the type of vehicle. The data flow consists of the following item which is defined in its own DDE:

tbmcv-vehicle_system_control.

Additional Sizing Assumptions:
None

To_Basic_Transit_Vehicle

This data flow is sent to the non-ITS functions on a transit vehicle from the Manage Transit function and contains control data for disabling the vehicle in emergency situations. It consists of the following data item which is defined in its own DDE:

tbtv-transit_vehicle_disable_command
+ tbtv-transit_vehicle_disable_reset_command.

Additional Sizing Assumptions:

None

To_Basic_Vehicle

This data flow contains commands to on-board vehicle actuators that control vehicle operation in terms of speed, direction and crash restraints. In addition it contains highway advisory radio (HAR) input to the radio (AM or FM) which is in the vehicle. It consists of the following data items each of which is defined in its own DDE:

tbv-change_brake_setting
+ tbv-change_direction
+ tbv-change_throttle_setting
+ tbv-deploy_crash_restraints
+ tbv-steer_left
+ tbv-steer_right
+ tbv-steer_straight
+ tbv-har_broadcast
+ tbv-vehicle_security_system_commands.

Additional Sizing Assumptions:
None

To_Care_Facility

This data flow is sent by processes within the Manage Emergency Services functions to the Care Facility Terminator. It contains the request for emergency care provider location, specialized services, quality of care, number of rooms available, and emergency room status. When this data is received it is used to route emergency vehicles to the closest medical care provider required for patients. It consists of the following data items each of which is defined in its own DDE:

tcf-care_facility_status_request
+ tcf-emergency_vehicle_patient_status_update
+ tcf-care_facility_vehicle_status_request
+ tcf-care_facility_disaster_data
+ tcf-care_facility_status_request_for_disaster.

Additional Sizing Assumptions:
None

To_Commercial_Vehicle_Driver

This data flow is sent to the commercial vehicle driver from the Manage Commercial Vehicle function and contains responses to requests for information or messages to the commercial vehicle driver. It consists of the following data items each of which is defined in its own DDE:

tcvd-border_pull_in_output
+ tcvd-confirm_data_stored
+ tcvd-critical_safety_problem
+ tcvd-critical_security_problem
+ tcvd-data_input_request
+ tcvd-data_request
+ tcvd-enrollment_confirmation
+ tcvd-enrollment_payment_confirmation
+ tcvd-general_pull_in_output
+ tcvd-inspection_results
+ tcvd-other_data_request
+ tcvd-output_data
+ tcvd-output_tag_data

+ tcvd-clearance_pull_in_output
+ tcvd-route_data
+ tcvd-routing_instructions
+ tcvd-safety_pull_in_output
+ tcvd-type_input_request
+ tcvd-on_board_pull_in_output.

Additional Sizing Assumptions:
None

To_CVO_Information_Requestor

This data flow is sent to the commercial vehicle information requester from the Manage Commercial Vehicles function. It contains credential and safety status information. The data flow consists of the following item which is defined in its own DDE:

tcvoir-credentials
+ tcvoir-credential_status
+ tcvoir-safety_status.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

To_DMV

This data flow is sent to the Department of Motor Vehicles from several processes within the ITS functions and provides a path to request vehicle registration data. It consists of the following data items each of which is defined in its own DDE:

tdmv-parking_lot_violation_identity_code
+ tdmv-parking_lot_violation_vehicle_license
+ tdmv-toll_violation_identity_code
+ tdmv-toll_violation_vehicle_license
+ tdmv-traffic_violation_identity_code
+ tdmv-traffic_violation_vehicle_license
+ tdmv-emissions_violation_identity_code
+ tdmv-emissions_violation_vehicle_license.

Additional Sizing Assumptions:
None

To_Driver

This data flow is sent to the driver from the Provide Driver and Traveler Services, Manage Traffic, Manage Maintenance and Construction, and Provide Electronic Payment Services functions. It contains output from traffic indicators (intersection and pedestrian controllers, signs, etc.), output from driver advisory signs on-board maintenance and construction vehicles, the results of payment transactions, work zone intrusion alerts from roadside devices and the vehicle itself, and on-line vehicle guidance and travel advisory data that has been requested by the driver. The data flow consists of the following data items each of which is defined in its own DDE:

td-advisory_information
+ td-broadcast_information
+ td-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
+ td-traffic_advisory_from_mcv
+ td-mcv_on_board_display
+ td-work_zone_intrusion_alert
+ td-work_zone_intrusion_alert_from_mcv.

Additional Sizing Assumptions:
None

To_Emergency_Personnel

This data flow is sent to the emergency personnel from the Manage Emergency Services function. It consists of the following data item which is defined in its own DDE:

tep-emergency_dispatch_order
+ tep-decision_support
+ tep-incident_command_information_presentation.

Additional Sizing Assumptions:
None

To_Emergency_System_Operator

This data flow is sent from the Manage Emergency Services function and contains output requested by the emergency services operator. It consists of the following data items each of which is defined in its own DDE:

teso-emergency_action_log_output
+ teso-emergency_data_output
+ teso-emergency_request
+ teso-emergency_vehicle_dispatch_failure
+ teso-archive_status
+ teso-image_match
+ teso-secure_area_sensor_surveillance_information
+ teso-alerts_and_advisories
+ teso-wide_area_alert_status.

Additional Sizing Assumptions:
None

To_Emergency_Telecommunications_System

This data flow is sent to the Emergency Telecommunications System by the Manage Emergency Services function. The terminator includes specialized systems and services that exist to provide an immediate response to emergencies that are reported by travelers, drivers and the general public, e.g. 911, E911, the new RESCUE service, etc. It consists of the following data item which is defined in its own DDE:

tets-incident_acknowledge.

Additional Sizing Assumptions:
None

To_Emissions_Operations_Personnel

This data flow is used by various processes within the Manage Traffic function to send data on pollution data to emissions operations personnel. It consists of the following data items each of which is defined in its own DDE, and some of which are groups of output flows belonging to the same facility:

temo-pollution_data_display.

Additional Sizing Assumptions:
None

To_Enforcement_Agency

This data flow is sent from several processes to the enforcement agency and contains information about violations that have been detected by many of the other functions within ITS. The data contained in each of these flows will enable the enforcement agency to carry out a prosecution of the offender if required and to provide access to its repository of information. The data flow consists of the following data item which is defined in its own DDE:

tea-cv_citation_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-speed_sensor_status
+ tea-enforcement_request_from_m_and_c
+ tea-enforcement_request_from_traffic
+ tea-speed_violation_notification
+ tea-accident_data
+ tea-cv_violation_data
+tea-emissions_violation_data.

Additional Sizing Assumptions:
None

To_Equipment_Repair_Facility

This data flow is sent from the Manage Maintenance and Construction function to the Equipment Repair Facility. It contains information about the vehicle conditions and use of each maintenance and construction vehicle, and the scheduling information to support repair and maintenance of the vehicles and equipment. It also contains

recommended actions based on the maintenance and construction decision system support. It consists of the following data items each of which is defined in its own DDE:

terf-basic_mcv_measures_for_equip_repair
+ terf-fleet_maintenance_availability
+ terf-vehicle_utilization_information
+ terf-mdss_recommended_actions.

Additional Sizing Assumptions:
None

To_Event_Promoters

This data flow is sent from the Manage Traffic, Manage Emergency Services, and Provide Driver and Traveler Services functions to Event Promoters and includes requests for event information and confirmation that previous event information has been logged by the respective functions. It contains the following data items each of which is defined in its own DDE:

tevp-event_confirmation
+ tevp-planned_event_confirmation
+ tevp-event_information_request.

Additional Sizing Assumptions:
None

To_Financial_Institution

This data flow is sent to the Financial Institution from the Provide Electronic Payment Services function and contains requests for payment to be made for services being requested by travelers or drivers, or details of those involved in bad transaction data. It consists of the following data items each of which is defined in its own DDE:

tfi-cv_payment_request
+ tfi-fare_payment_violator_data
+ tfi-parking_lot_payment_violator_data
+ tfi-request_charges_payment
+ tfi-request_fare_payment
+ tfi-request_toll_payment
+ tfi-toll_payment_violator_data
+ tfi-driver_map_payment_request
+ tfi-other_services_payment_request
+ tfi-registration_payment_request
+ tfi-traveler_display_payment_request
+ tfi-traveler_map_payment_request
+ tfi-traveler_other_services_payments_request
+ tfi-traveler_rideshare_payment_request
+ tfi-archive_payment_request
+ tfi-archive_analysis_payment_request.

Additional Sizing Assumptions:
None

To_Fleet_Freight_Manager

This data flow is sent to the commercial fleet manager from the Manage Commercial Vehicles function and contains data to be output to the manager. It consists of the following data items each of which is defined in its own DDE:

tffm-confirm_enrollment_data_stored
+ tffm-data_input_request
+ tffm-driver_route_instructions
+ tffm-enrollment_confirmation
+ tffm-enrollment_payment_confirmation
+ tffm-freight_data_input_request
+ tffm-incident_alert
+ tffm-other_data_request
+ tffm-output_tag_data
+ tffm-preclearance_results
+ tffm-roadside_activity_report
+ tffm-route_data
+ tffm-assignment_alert
+ tffm-freight_route_alert
+ tffm-freight_integrity_alert.

Additional Sizing Assumptions:
None

To_Freight_Equipment

This data flow contains data sent to freight equipment, which included intermodal freight containers, intermodal chassis and truck trailers. The data flow consists of the following item which is defined in its own DDE:

tfe-operational_monitoring_parameters
+ tfe-integrity_monitoring_parameters.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

To_Intermodal_Freight_Depot

This data flow to the Intermodal Freight Depot terminator 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 also provides a confirmation of traffic event information. This data flow consists of the following data items each of which is defined in its own DDE:

tifd-booking_information
+ tifd-freight_request
+ tifd-intermodal_archive_request
+ tifd-intermodal_archive_status
+ tifd-intermodal_freight_event_confirmation
+ tifd-traffic_data_for_intermodal_freight.

Additional Sizing Assumptions:
None

To_Intermodal_Freight_Shipper

This data flow is sent to the Intermodal Freight Shipper from the Manage Commercial Vehicle function. It contains information regarding the clearance status of a commercial vehicle freight shipment from a roadside checkstation, such as an international border facility. This data flow consists of the following data items each of which is defined in its own DDE:

tifs-border_clearance_status
+ tifs-booking_response
+ tifs-freight_breach
+ tifs-freight_request.

Additional Sizing Assumptions:
None

To_ISP_Operator

This data flow is sent to the ISP operator by the Provide Driver and Traveler Services function. It contains output of the parameters used in wide area information broadcast, yellow page services, trip planning and route selection as requested by the operator. 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
+ tispo-yellow_pages_operator_information.

Additional Sizing Assumptions:
None

To_Map_Update_Provider

This data flow is sent to the map update 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 traveler guidance, and as a source of data for trip planning and transit route generation. The display map data is used as the background for the output of traffic, incident, maintenance and construction activities, transit services and pollution data, the guidance data is used for the guidance of drivers and travelers on their selected routes, while the trip planning data is used for routes produced in response to traveler's trip requests. Static data is sent to the map update provider for use in preparing the actual digitized map data. Request for data to be imported into the Manage Archived Data function is included in this data flow along with the status that is returned to the terminator when the data is imported. The data flow 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_traveler_display_update
+ tmup-request_traveler_display_updates_FB
+ tmup-route_restrictions
+ tmup-transit_map_update_request
+ tmup-vehicle_map_update_cost_request
+ tmup-vehicle_map_update_request
+ tmup-map_archive_request

+ tmup-map_archive_status
+ tmup-emergency_route_map_request
+ tmup-request_m_and_c_display_update
+ tmup-request_m_and_c_route_map
+ tmup-fleet_map_update_request.

Additional Sizing Assumptions:
None

To_MC_Administrative_Systems

This data flow is sent from the Manage Maintenance and Construction function to the Maintenance and Construction Administrative Systems. It contains updates on work performance and project status, and requests for administrative information that could affect scheduling of maintenance and construction activities such as resupply status. The data flow consists of the following data items each of which is defined in its own DDE:

tmcas-m_and_c_administrative_request
+ tmcas-resupply_request
+ tmcas-m_and_c_work_performance
+ tmcas-work_zone_info.

Additional Sizing Assumptions:
None

To_MC_Center_Personnel

This data flow contains the information that is provided by the Manage Maintenance and Construction function to assist the Maintenance and Construction Center Personnel in decision making. It includes presentation of data concerning environmental information, scheduled work plans and progress on maintenance and construction activities, road network information, fleet status, recommended actions from the automated maintenance decision support system, etc. The data flow consists of the following data items each of which is defined in its own DDE:

tmccp-archive_status
+ tmccp-env_and_weather_data
+ tmccp-env_info_for_dissemination
+ tmccp-mdss_recommended_actions
+ tmccp-m_and_c_activity_status
+ tmccp-processed_env_info
+ tmccp-resource_request
+ tmccp-scheduled_work_plan
+ tmccp-vehicle_fleet_status
+ tmccp-view_of_road_network
+ tmccp-auto_treat_status
+ tmccp-work_zone_info
+ tmccp-work_zone_images_for_display
+ tmccp-emergency_response_plan
+ tmccp-alert_and_threats_info
+ tmccp-vehicle_speed_data.

Additional Sizing Assumptions:
None

To_MC_Field_Personnel

This data flow contains the information that is provided by the Manage Maintenance and Construction function to assist the Maintenance and Construction Field Personnel in decision making. The data includes dispatch, routing, and road network conditions from the fleet management center, vehicle condition, operational status, materials

status, intrusion alerts/warnings from the vehicle itself, and work zone information. The data flow consists of the following data items each of which is defined in its own DDE:

tmcfp-environmental_sensor_info
+ tmcfp-mcv_operational_data
+ tmcfp-road_network_info
+ tmcfp-suggested_route
+ tmcfp-vehicle_condition_status
+ tmcfp-dispatch_info
+ tmcfp-work_zone_intrusion_warning
+ tmcfp-work_zone_on_board_intrusion_warning
+ tmcfp-work_zone_status_presentation
+ tmcfp-work_zone_intrusion_alert
+ tmcfp-work_zone_intrusion_alert_from_mcv
+ tmcfp-mdss_recommended_actions
+ tmcfp-materials_status_onboard.

Additional Sizing Assumptions:
None

To_Media

This data flow is sent by processes within the Manage Traffic, Manage Transit, Manage Maintenance and Construction, Provide Driver and Traveler Services, and Manage Emergency Services functions to the Media. It provides information on traffic flow conditions, traffic incidents, transit incidents and other emergencies, maintenance and construction activities, environmental information, plus a request for traveler information. The output data can be based upon a specific request from the Media, or as part of a subscription service where information of a predefined type is automatically output to the Media. It consists of the following data items each of which is defined in its own DDE:

tm-emergency_information
+ tm-incident_data
+ tm-incident_information
+ tm-traffic_data
+ tm-traffic_information
+ tm-transit_emergency_information
+ tm-transit_incident_information
+ tm-transit_schedule_deviations_to_media
+ tm-transit_vehicle_deviations
+ tm-traveler_information_request
+ tm-pollution_data
+ tm-m_and_c_work_plans_for_media
+ tm-roadway_maint_status_for_media
+ tm-work_zone_images
+ tm-work_zone_info
+ tm-road_weather_info.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

To_Multimodal_Transportation_Service_Provider

This data flow is sent to the multimodal transportation service provider from the Provide Driver and Traveler Services, Manage Transit, and Manage Archived Data functions. It contains either a request for details of the services available to move travelers by means other than road vehicles, e.g. rail, air, sea, river, bike routes, etc., or changes to the arrival time(s) of transit services caused by schedule deviations. It also contains work plan information for maintenance and construction activities. The data flow consists of the following data items each of which is defined in its own DDE:

tmtsp-air_services_request
+ tmtsp-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
+ tmtsp-m_and_c_work_plans_for_mtsp
+ tmtsp-non_motorized_services_request.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

To_Other_CVAS

This data flow is sent to the other commercial vehicle administration system from the Manage Commercial Vehicles function and contains border clearance, safety, credentials, and fee information about commercial vehicles located within its jurisdictional boundaries. This data flow consists of the following data items each of which is defined in its own DDE:

tocvas-border_clearance
+ tocvas-data_table
+ tocvas-credentials_status
+ tocvas-credentials
+ tocvas-route_restrictions
+ tocvas-safety_inspection
+ tocvas-safety_status.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

To_Other_Emergency_Management

This data flow is sent to the other emergency centers by the Manage Emergency Services function to advise them of incidents that are taking place in locations that are in the area served by the local function and hence outside their area of operations. It consists the following data items each of which is defined in its own DDE:

toem-incident_details
+ toem-incident_response_coordination
+ toem-mayday_emergency_data
+ toem-verified_image_match
+ toem-threat_info
+ toem-wide_area_alert_notification
+ toem-alert_notification_status
+ toem-secure_area_surveillance
+ toem-secure_area_sensor_data
+ toem-threat_analysis_results
+ toem-request_for_emergency_support
+ toem-response_for_emergency_support
+ toem-disaster_response_plan_coordination
+ toem-evacuation_information_for_other_em
+ toem-evacuation_plan_coordination
+ toem-evacuation_resource_request
+ toem-transportation_system_status_for_disaster
+ toem-transportation_system_status_for_evacuation
+ toem-evacuation_status
+ toem-incident_command_information_coordination
+ toem-evacuation_resource_response
+ toem-emergency_resource_response
+ toem-emergency_resource_request.

Additional Sizing Assumptions:
None

To_Other_ISP

This data flow is sent from the Provide Driver and Traveler 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.

Additional Sizing Assumptions:
None

To_Other_MCM

This data flow is used by the Manage Maintenance and Construction function to send data to other maintenance and construction facilities whose areas of operation are outside those of the local facility. It consists of the following data items each of which is defined in its own DDE:

tomcm-resource_coordination_data
+ tomcm-m_and_c_work_plans
+ tomcm-m_and_c_plan_feedback
+ tomcm-roadway_maint_status
+ tomcm-env_sensor_data
+ tomcm-road_weather_info
+ tomcm-work_zone_images
+ tomcm-work_zone_info.

Additional Sizing Assumptions:
None

To_Other_MCV

This data flow is used by vehicles within the Manage Maintenance and Construction function to send data to other maintenance and construction vehicles whose areas of operation are outside those of the local facility. The data flow consists of the following data items each of which is defined in its own DDE:

tomcv-vehicle_operational_data
+ tomcv-work_zone_intrusion_detection_on_board
+ tomcv-work_zone_intrusion_alert_on_board
+ tomcv-work_zone_intrusion_warning_to_crew
+ tomcv-crew_movements
+ tomcv-env_conditions.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

To_Other_RS

This data flow is sent to the Other RS terminator and is used to transfer data from sensors and control to other sensors, to send data to roadway information systems (e.g., dynamic message signs), and to control roadside indicator devices such as intersection controllers and ramp meter controllers. It consists of the following data items each of which is defined in its own DDE:

tors-roadway_info_data_from_devices
+ tors-roadway_info_data_from_sensors
+ tors-sensor_control
+ tors-sensor_data
+ tors-sensor_status
+ tors-device_control
+ tors-device_status.

Additional Sizing Assumptions:
None

To_Other_Toll_Administration

This data is sent to the Other Toll Administration terminator from the Process Electronic Toll Payment function. It contains the following data items each of which is defined in its own DDE:

tota-toll_pricing_data
+ tota-toll_charges_reconciliation_data.

Additional Sizing Assumptions:
None

To_Other_Traffic_Management

This data flow is used by the Manage Traffic function to send data to Other Traffic Management centers whose areas of operation are outside those of the local center. It consists of the following data items each of which is defined in its own DDE:

totm-data_request
+ totm-transfer_local_TMC_data_FB.

Additional Sizing Assumptions:
None

To_Other_Transit_Management

This data flow is sent to Other Transit Management centers by the Manage Transit function and contains data that is to be shared with the other transit centers. It consists of the following data item which is defined in its own DDE:

totrm-transit_traveler_information
+ totrm-transit_fare_data_coordination
+ totrm-transit_service_data.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=512;

To_Parking_Operator

This data flow is used by the Manage Traffic function to send data to a parking lot operator with instructions to change the operational state of the parking lot, e.g. close the lot. It consists of the following data item which is defined in its own DDE:

tpo-change_lot_state
+ tpo-archive_status
+ tpo-parking_lot_charge_change_request
+ tpo-parking_lot_status
+ tpo-request_advanced_parking_payment
+ tpo-transaction_reports.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

To_Rail_Operations

This data flow is sent to a railroad operated operations center (or centers) from an ITS Manage Traffic or Manage Maintenance and Construction function. It contains information about scheduled and/or planned highway events or planned highway activity that may be relevant to rail traffic management (e.g. HRI maintenance schedules, HAZMAT incidents near railroads, potential threats, etc.). This is typically informational data and is not required for timely operation of grade crossing protection and safety devices. It does however have a mechanism for notification of incidents or situations that are not normally detected and reported at HRIs and through wayside rail equipment. This flow also contains feedback from the Manage Maintenance and Construction function regarding railroad schedules. This data flow consists of the following data items each of which is defined in its own DDE:

tro-event_schedules
+ tro-incident_notification
+ tro-equipment_status
+ tro-m_and_c_work_plans_for_rail
+ tro-railroad_schedule_feedback
+ tro-road_weather_info
+ tro-incident_response_status
+ tro-threat_info
+ tro-incident_information
+ tro-disaster_response_plan_coordination
+ tro-evacuation_plan_coordination
+ tro-evacuation_information_for_rail
+ tro-transportation_system_status_for_disaster
+ tro-transportation_system_status_for_evacuation.

Additional Sizing Assumptions:
None

To_Shelter_Providers

This data flow is sent from the Manage Traffic, Manage Emergency Services, and Provide Driver and Traveler Services functions to shelter providers and includes requests for shelter information, availability, location, type, etc. It contains the following data items each of which is defined in its own DDE:

tsp-shelter_information_request
+ tsp-shelter_evacuation_information
+ tsp-evacuation_traveler_information.

Additional Sizing Assumptions:
None

To_Storage_Facility

This data flow is sent from the Manage Maintenance and Construction function to the Storage Facility and contains a request for status and general inventory information regarding the materials and equipment available at the facility. The data flow consists of the following data items each of which is defined in its own DDE:

tsf-materials_status_request
+ tsf-equipment_availability_request.

Additional Sizing Assumptions:
None

To_Surface_Transportation_Weather_Service

This data flow to the Surface Transportation Weather Service contains the environmental sensor data, asset treatment for road condition forecasts, road condition and weather information from other sources, and requests for transportation related weather information. This data flow also contains requests for data from the Manage Archived Data function. This data flow consists of the following items each of which is contained in its own DDE:

tstws-asset_treatment_info
+ tstws-env_sensor_data
+ tstws-env_info
+ tstws-trans_weather_archive_status
+ tstws-archive_request
+ tstws-env_sensor_data_from_traffic
+ tstws-roadway_env_sensor_status
+ tstws-roadway_env_sensor_data
+ tstws-trans_weather_info_request.

Additional Sizing Assumptions:
None

To_Telecom_System_for_Traveler_Info

This data flow is sent to the Telecommunications Systems for Traveler Information terminator and contains tailored information for a single 511 caller, or region-specific traveler information suitable for batch upload to a 511 system. This data flow includes information such as traffic conditions, work zone and roadway maintenance information, roadway environment conditions, weather and event information, transit schedules, deviations, and fares, yellow pages information, current ferry and rail schedules, and airport status. The data flow consists of the following data items each of which is defined in its own DDE:

ttsti-511_batch_regional_traveler_information
+ ttsti-511_caller_traveler_information
+ ttsti-511_alert_notification.

Additional Sizing Assumptions:
None

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
+ tta-alert_notification.

Additional Sizing Assumptions:
None

To_Toll_Operator

This data flow is sent from the Provide Electronic Payment function to the operator at a toll plaza and contains previously requested transaction reports. It consists of the following data items each of which is defined in its own DDE:

tto-transaction_reports
+ tto-alert_notification.

Additional Sizing Assumptions:
None

To_Trade_Reg_Agencies

This data flow is sent to the Trade Regulatory Agencies from the Manage Commercial Vehicles function and contains data regarding border clearances of commercial vehicles at roadside facilities. It consists of the following data items each of which is defined in its own DDE:

ttra-border_clearance_status
+ ttra-domestic_transportation_information
+ ttra-transportation_border_clearance.

Additional Sizing Assumptions:
None

To_Traffic_Operations_Personnel

This data flow is used by various processes within the Manage Traffic function to send data on traffic conditions, weather conditions, incidents, incident responses, safeguard and barrier system status, traffic and travel demand 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-traffic_control_information_display
+ ttop-video_image_output
+ ttop-resource_response
+ ttop-current_sensor_faults
+ ttop-wrong_way_detection
+ ttop-weather_information
+ ttop-archive_status
+ ttop-disaster_response_plan_input_request
+ ttop-evacuation_plan_input_request
+ ttop-barrier_safeguard_status
+ ttop-wide_area_alert_notification
+ ttop-traveler_information_restrictions
+ ttop-deactivate_information_restrictions
+ ttop-vehicle_signage_status
+ ttop-roadway_info_status
+ ttop-roadway_incident_status.

Additional Sizing Assumptions:
None

To_Transit_System_Operators

This data flow is sent from the Manage Transit function to the transit system operators. It contains information on potential incidents, video images and transit fare collection data. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output. The data flow consists of the following data items each of which is defined in its own DDE:

ttso-work_schedule
+ ttso-archive_status
+ ttso-coordination_request
+ ttso-emergency_plan_response
+ ttso-emergency_request
+ ttso-infrastructure_integrity_status
+ ttso-media_parameters
+ ttso-parameters
+ ttso-paratransit_service
+ ttso-passenger_loading_error
+ ttso-potential_incidents_alarm
+ ttso-proposed_corrections
+ ttso-response_parameter_output
+ ttso-technician_information
+ ttso-transaction_reports
+ ttso-transit_fare_output
+ ttso-transit_services_output
+ ttso-transit_vehicle_data
+ ttso-transit_vehicle_disable_status
+ ttso-transit_vehicle_maintenance_information
+ ttso-transit_vehicle_operator_information
+ ttso-wide_area_alert_notification.

Additional Sizing Assumptions:
None

To_Transit_Vehicle_Operator

This data flow is sent to the transit vehicle operator and the information is specific to this type of operator and is not relevant to drivers of other types of vehicle(s). The data flow consists of the following data items each of which is defined in its own DDE:

ttvo-batch_mode_data_transfer_status
+ ttvo-corrective_instructions
+ ttvo-paratransit_information
+ ttvo-request_fare_transaction_mode_set_up
+ ttvo-route_assignments
+ ttvo-secure_transit_vehicle_emergency_response
+ ttvo-transit_vehicle_disable_status
+ ttvo-transit_vehicle_schedule_deviations
+ ttvo-secure_transit_vehicle_surveillance.

Additional Sizing Assumptions:
None

To_Traveler

This data flow is sent from the Provide Driver and Traveler Services function and contains information and guidance data requested by the traveler. The output may be in audio or visual form, with the latter being available in a variety of formats depending on the device being used by the traveler, e.g. personal device, kiosk, home computer, etc. It is therefore possible for the visual output to appear on a variety of different types of displays, or hardcopy (paper) output. The data flow consists of the following data items each of which is defined in its own DDE:

tt-advisory_information
+ tt-emergency_message
+ tt-extra_trip_data_request
+ tt-guidance
+ tt-guidance_input_request
+ tt-guidance_map_update_response
+ tt-guidance_route_details
+ tt-other_services_roadside_confirmed
+ tt-other_services_vehicle_confirmed
+ tt-personal_extra_trip_data_request
+ tt-personal_trip_planning_responses
+ tt-remote_emergency_response
+ tt-roadside_access_message
+ tt-roadside_payment_confirmed
+ tt-secure_area_broadcast_message
+ tt-secure_transit_vehicle_broadcast_message
+ tt-secure_transit_vehicle_emergency_response
+ tt-transit_information
+ tt-transit_vehicle_information
+ tt-traveler_information
+ tt-personal_traveler_information
+ tt-remote_traveler_information
+ tt-trip_planning_responses
+ tt-vehicle_access_message
+ tt-vehicle_payment_confirmed.

Additional Sizing Assumptions:
None

To_Traveler_Card

This data flow is sent to the traveler card / payment instrument terminator by the Provide Electronic Payment Services function. It consists of different types of data: that which requests payment for a service from the credit stored by the instrument itself, that which gives notice that payment for the service will charged to the credit identity provided by the instrument, that which requests information concerning traveler services based on the traveler's identity and information stored on the terminator device, and the updated information supplied to the traveler's device. The data flow consists of the following data items each of which is defined in its own DDE:

ttc-debited_fare_payment_at_roadside
+ ttc-debited_payment_at_parking_lot
+ ttc-debited_payment_at_personal_device
+ ttc-debited_traveler_payment_at_roadside_for_transit
+ ttc-debited_traveler_payment_at_vehicle
+ ttc-debited_traveler_payment_at_roadside
+ ttc-debited_payment_at_toll_plaza
+ ttc-debited_driver_payment_at_vehicle
+ ttc-debited_payment_on_transit_vehicle
+ ttc-request_fare_payment_at_roadside
+ ttc-request_fare_payment_on_transit_vehicle
+ ttc-request_payment_at_parking_lot
+ ttc-request_payment_at_toll_plaza
+ ttc-request_traveler_parking_payment
+ ttc-debited_traveler_parking_payment
+ ttc-traveler_personal_information_update
+ ttc-traveler_remote_personal_information_update.

Additional Sizing Assumptions:
None

To_Wayside_Equipment

This data flow represents information for trains or hi-rail vehicles approaching a specific highway grade crossing and their crews. It is provided by HRI traffic control elements to rail owned and operated wayside interface equipment (train signaling circuits, automatic control interfaces, local connections to centralized sites via railroad communications networks, etc.). This is a time critical flow and requires the most direct communications path available to a train approaching a grade crossing. This data flow consists of the following data items each of which is defined in its own DDE:

twe-stop_train_indication
+ twe-stop_highway_indication
+ twe-hri_status.

Additional Sizing Assumptions:
None

To_Weather_Service

This data flow to the Weather Service Terminator contains the request for data to be imported into the archive and the status of the import process. This data flow also contains environmental sensor data collected by ITS processes that is provided to the Weather Service. This data flow consists of the following items each of which is contained in its own DDE:

tws-weather_archive_request
+ tws-weather_archive_status
+ tws-env_sensor_data
+ tws-env_sensor_data_from_traffic
+ tws-env_info

+ tws-roadway_env_sensor_data
+ tws-roadway_env_sensor_status.

Additional Sizing Assumptions:
None

To_Yellow_Pages_Service_Providers

This data flow is sent from the Provide Driver and Traveler Services function and contains requests for information needed by a traveler. It consists of the following data items each of which is defined in its own DDE:

typsp-provider_update_confirm
+ typsp-transaction_request
+ typsp-yellow_pages_info_request.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1000000;

tocvas-border_clearance

This data flow is sent to other commercial vehicle administration system from the Manage Commercial Vehicle function. It contains information about the status of the movement of goods across international borders with corresponding trip identification numbers. .

Additional Sizing Assumptions:
SIZE=4;

tocvas-credentials

This data flow is sent to other commercial vehicle administration system from the Manage Commercial Vehicle function and contains full credentials information. .

Additional Sizing Assumptions:
SIZE=4;

tocvas-credentials_status

This data flow is sent to other commercial vehicle administration system from the Manage Commercial Vehicle function. It contains information regarding the status of credentials information including registration, licensing, check flags, and electronic screening enrollment data. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=1024;

tocvas-route_restrictions

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

hazmat_route_restrictions
+ current_asset_restrictions.

Additional Sizing Assumptions:
None

tocvas-safety_inspection

This data flow is sent to the other commercial vehicle administration system from the Manage Commercial Vehicle function. It contains a report containing results of commercial vehicle safety inspections. .

Additional Sizing Assumptions:
SIZE=4;

tocvas-safety_status

This data flow is sent to the other commercial vehicle administration system from the Manage Commercial Vehicle function. It contains safety information such as safety ratings, inspection summaries, and violation summaries. .

Additional Sizing Assumptions:
SIZE=4;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

toem-alert_notification_status

This data flow contains information indicating the status of the alert sent to other emergency centers including the information systems that are being used to provide the alert notification. .

Additional Sizing Assumptions:
SIZE=64;

toem-disaster_response_plan_coordination

This data flow is used to coordinate disaster response plans with other emergency management centers. It contains information regarding the nature of the disaster, and the preplanned response plan for the other center. Given this information, the other center can than provide a plan that it will use that is appropriate for the given disaster. The data flow consists of the following data items which are defined in their own DDE:

emergency_input_for_disaster
+ oem_preplanned_disaster_response_plan
+ evacuation_status_for_disaster_response
+ emergency_center_identity.

Additional Sizing Assumptions:
None

toem-emergency_resource_request

This flow contains a request for another emergency management center in supporting an incident, disaster, or other emergency. It contains a set of resources that emergency management is planning on utilizing and has been told are available for use. The data flow consists of the following data item which is defined in its own DDE:

em_resource_request
+ emergency_center_identity.

Additional Sizing Assumptions:
None

toem-emergency_resource_response

This flow contains a response to another emergency management center for support of an incident, disaster, or other emergency. The data flow consists of the following data item which is defined in its own DDE:

em_resource_response.

Additional Sizing Assumptions:
None

toem-evacuation_information_for_other_em

This flow contains information regarding the evacuation for other emergency management centers. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule
+ emergency_center_identity.

Additional Sizing Assumptions:
None

toem-evacuation_plan_coordination

This data flow is used to coordinate evacuation plans with other emergency management centers. It contains information regarding the nature of the disaster or incident that has required an evacuation, and the preplanned evacuation plan for the center. Given this information, the other emergency management center can than update and provide a plan that it will use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

emergency_center_identity
+ emergency_evacuation_data
+ evacuation_status_report
+ oem_preplanned_evacuation_plan.

Additional Sizing Assumptions:
None

toem-evacuation_resource_request

This flow contains a request for another emergency management center in supporting an evacuation. It provides a set of resources that evacuation management is planning on utilizing and has been told are available for use. The data flow consists of the following data item which is defined in its own DDE:

em_resource_request
+ emergency_center_identity.

Additional Sizing Assumptions:
None

toem-evacuation_resource_response

This flow contains a response to another emergency management center for support of an evacuation. The data flow consists of the following data item which is defined in its own DDE:

em_resource_response.

Additional Sizing Assumptions:
None

toem-evacuation_status

This data flow contains a status of the response to an evacuation being performed by the emergency management center to another emergency management center. It includes information regarding response to requests for assistance in an evacuation. In general it provides information regarding how well the emergency management center is able to respond to the evacuation, and may be used to improve on the current evacuation plan. .

Additional Sizing Assumptions:
SIZE=48;

toem-incident_command_information_coordination

This data flow contains information about the management of an incident to other emergency management. It provides the detailed status for an emergency response that is in progress and includes a detailed view of the assets which are deployed for the emergency, the current emergency status and any HAZMAT information not already sent. It contains the following data items each of which are defined in their own DDE:

incident_number
+ emergency_center_identity
+ incident_severity

+ incident_vehicle_status
+ incident_status
+ cf_hazmat_vehicle_information.

Additional Sizing Assumptions:
None

toem-incident_details

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

emergency_center_identity
+ incident_confidence_level
+ incident_location
+ incident_number
+ incident_report_source
+ incident_reported_time
+ incident_description
+ incident_start_time
+ incident_duration
+ incident_severity
+ incident_status
+ incident_traffic_impact
+ incident_type.

Additional Sizing Assumptions:
None

toem-incident_response_coordination

This data flow supports coordination of an incident response between allied response agencies. It supports the coordination of response procedures, status and resources between agencies. It consists of the following data items which are defined in their own DDEs:

incident_response_status
+ agency_incident_response_procedures
+ incident_resource_coordination
+ hand_off_coordination
+ staging_area
+ emergency_center_identity.

Additional Sizing Assumptions:
None

toem-mayday_emergency_data

This data flow is sent to the other emergency centers from the Manage Emergency Services function. It contains information about an emergency that was reported by a Mayday system, verified by the Mayday service provider, and determined to require a response from a public safety agency or another authorized responder. It consists of the following data items, each of which is contained in its own DDE:

emergency_request_driver_details
+ emergency_request_vehicle_details
+ mayday_agency_ID

+ driver_status_update
+ vehicle_status_update.

Additional Sizing Assumptions:
None

toem-request_for_emergency_support

This flow contains a request from emergency management for other emergency management to support an emergency event. The data flow consists of the following data items which are defined in their own DDE:

oem_disaster_response_plan
+ emergency_center_identity.

Additional Sizing Assumptions:
None

toem-response_for_emergency_support

This flow contains a status response from emergency management for other emergency management. It informs other emergency management of how emergency management is responding to a request for supporting an emergency event. The data flow consists of the following data items which are defined in their own DDE:

emergency_status_report_for_oem
+ emergency_center_identity.

Additional Sizing Assumptions:
None

toem-secure_area_sensor_data

This data flow is sent to other emergency centers by the Manage Emergency Services function to provide sensor data from secure areas located in the area served by the local function. This flow includes raw data from threat sensors, objection detection sensors, intrusion and motion detection sensors, and infrastructure integrity sensors, as well as data produced by processing that sensor data. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ sensor_identity
+ emergency_center_identity
+ infrastructure_integrity_sensor_data_collected
+ infrastructure_integrity_sensor_processed_data
+ threat_sensor_data_collected
+ threat_sensor_processed_data
+ object_sensor_data_collected
+ object_sensor_processed_data
+ intrusion_motion_sensor_data_collected
+ intrusion_motion_sensor_processed_data}.

Additional Sizing Assumptions:
None

toem-secure_area_surveillance

This data flow is sent to other emergency centers by the Manage Emergency Services function to provide surveillance data from secure areas located in the area served by the local function. This flow includes high

resolution video images, audio, and data produced by processing those images and audio. The data flow consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image
+ secure_audio
+ secure_area_images
+ secure_video_image_data
+ secure_audio_data
+ emergency_center_identity}.

Additional Sizing Assumptions:
None

toem-threat_analysis_results

This data flow is sent from the Manage Emergency Services function to other emergency centers and contains detailed results of threat analysis performed on data collected from secure areas within the area serviced by the local function. The secure area may include those frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and emergency centers outside the local jurisdiction. This data flow includes the analysis input parameters, the sources of the collected data and timestamps, as well as the final analysis results. .

Additional Sizing Assumptions:
SIZE=64;

toem-threat_info

This data flow is sent from the Manage Emergency Services function to other emergency centers and contains information about threats detected in the transportation network serviced by the local function. This threat is based on analysis of data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ emergency_center_identity
+ threat_severity
+ geographical_area
+ threat_duration}.

Additional Sizing Assumptions:
None

toem-transportation_system_status_for_disaster

This data flow consists of a report of the current status of the transportation system. This data is reported to Other Emergency Management terminators as an ongoing status during a disaster. The data flow consists of the following data items each of which is defined in its own DDE:

disaster_transportation_system_status
+ emergency_center_identity.

Additional Sizing Assumptions:

None

toem-transportation_system_status_for_evacuation

This data flow consists of a report of the current status of the transportation system. This data is reported to the Other Emergency Management terminator as an ongoing status during an evacuation. The data flow consists of the following data items each of which is defined in its own DDE:

evacuation_transportation_system_status
+ emergency_center_identity.

Additional Sizing Assumptions:
None

toem-verified_image_match

This data flow is sent to other emergency centers by the Manage Emergency Services function and contains the results of image matching analysis from the secure area served by the local function. This flow indicates whether an image has matched an image in the database of known images. The image data is obtained from areas frequented by travelers, and from areas typically away from travelers. The data flow consists of the following data items each of which is defined in its own DDE:

timestamp
+ emergency_center_identity
+ station_id
+ transit_vehicle_location
+ transit_vehicle_identity
+ surveillance_device_type_identity
+ image_match_confirmation
+ image_id.

Additional Sizing Assumptions:
None

toem-wide_area_alert_notification

This data flow is sent to the other Emergency Management centers providing notification information of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction. This data flow includes a list of the types of alerts detected, the locations, and any other details pertinent to the alert, subject to any constraints applied by the sending agency on providing information to outside agencies.

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

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

toisp-request_data

This data flow contains a request for road data covering another geographic area outside that covered by the local function. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=16;

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_data_for_retrieval.

Additional Sizing Assumptions:
None

toisp-transit_data_request

This data flow contains a request (either as a subscription or as individual request) to another ISP for available transit data to be provided. This allows an ISP to act as a wholesaler and send data from Other ISP to the process. .

Additional Sizing Assumptions:
SIZE=16;

toisp-transit_information

This data flow is used to provide data on the current state of transit operations (regarding both incidents and transit 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
+ traveler_transit_information_advisory_data
+ traveler_transit_information_broadcast_data.

Additional Sizing Assumptions:

None

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. .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

toll_archive_data

This data flow from Provide Electronic Payment Services to Manage Archived Data contains the archive data stored in the Provide Electronic Payment Services function along with the meta data describing the data as collected from field or operational equipment. This data flow is made up of operational data concerning electronic toll collection and pricing. This data flow is made up of the following items each of which is defined in its own DDE:

toll_archive_catalog
+ toll_data_for_archive.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
SIZE=list_size+date+time
+TOLL_SAMPLE_RATE{TOLL_SEGS{toll_cost+toll_segment_identity+toll_segment_users}};

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.

Additional Sizing Assumptions:
None

toll_payment_confirmation

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that the previous request for the cost of the current toll to be deducted from the credit currently stored by the driver's traveler card / payment instrument has been completed successfully. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

toll_payment_debited

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that the cost of the current toll will be deducted by the financial institution from the credit identity previously provided by the traveler card / payment instrument being used by the driver. It is only sent when a credit identity has been

previously received from the traveler card / payment instrument. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

toll_payment_request

This data flow is used within the Provide Electronic Payment Services function and contains the request for the cost of the current toll to be deducted from the credit currently stored by the traveler card / payment instrument. It is only sent when a value of stored credit has been previously received from the traveler card / payment instrument. The data flow consists of the following data item which is defined in its own DDE:

toll_cost.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

toll_plaza_identity

This data flow is used within the Provide Electronic Payment Services function. It contains the identity of a toll plaza. This is used in the calculation of average journey times between toll plazas. It enables a unique identity to be provided for each toll plaza. .

Additional Sizing Assumptions:
SIZE=8;

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. .

Additional Sizing Assumptions:
SIZE=2;

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. .

Additional Sizing Assumptions:
SIZE=2;

toll_price_changes_request

This data flow is sent from the Manage Traffic function to the Provide Electronic Payment Services function and contains a request for a change to the current toll pricing structure that will help to influence a change in modal split of journeys currently being undertaken by travelers of all types, i.e. including drivers and users of the transit system. It consists of the following data items each of which is defined in its own DDE:

toll_segments
+ toll_price
+ toll_price_application_time
+ vehicle_type_for_tolls.

Additional Sizing Assumptions:
None

toll_price_changes_response

This data flow is sent from the Provide Electronic Payment Services function to the Manage Traffic function. It contains the response to a previous request for the current toll prices to be changed to help produce a change in the current modal split of trips being undertaken by all types of travelers. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
SIZE=list_size+TOLL_SEGS{toll_price+toll_price_application_time
+toll_segment_identity+vehicle_type_for_tolls};

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.

Additional Sizing Assumptions:
SIZE=list_size+TOLL_SEGS{toll_price+toll_price_application_time
+toll_segment_identity+vehicle_type_for_tolls};

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. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

toll_price_for_cvo

This data flow is sent from the Provide Electronic Payment Services function to the Manage Commercial Vehicles function and contains the price for each road segment to which a toll applies, with the time and date for when it applies. The data flow consists of the following data items each of which is defined in its own DDE:

toll_segments
+ toll_price
+ toll_price_application_time.

Additional Sizing Assumptions:
None

toll_price_for_cvo_request

This data flow is sent from the Manage Commercial Vehicles 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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=1;

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}.

Additional Sizing Assumptions:
SIZE=list_size+TOLL_SEGS{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.

Additional Sizing Assumptions:
SIZE=list_size+TOLL_SEGS{toll_price+toll_price_application_time
+toll_segment_identity+vehicle_type_for_tolls};

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.

Additional Sizing Assumptions:
SIZE=list_size+LINKS{toll_price+toll_price_application_time+toll_segment_identity
+vehicle_type_for_tolls};

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.

Additional Sizing Assumptions:
None

toll_prices_for_other_toll

This data includes toll prices to be sent to another toll administration function. .

Additional Sizing Assumptions:
SIZE=200;

toll_reconciliation_inputs

This data is collected from another toll administration function to support the reconciliation of toll charges between agencies. .

Additional Sizing Assumptions:
SIZE=200;

toll_reconciliation_outputs

This data is sent to another toll administration function to support the reconciliation of toll charges between agencies. .

Additional Sizing Assumptions:
SIZE=200;

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}.

Additional Sizing Assumptions:
SIZE=list_size+1{ROUTE_SEGS{TOLL_MILES/HIGHWAY_MILES}}{toll_segment_identity};

toll_segment_identity

This data flow is used within the Provide Electronic Payment Services function and the Provide Driver and Traveler Services function. It contains the identity number of a toll segment, which may not be the same physical entity as a route segment or a link as used by traffic management processes. The data flow consists of the following data items each of which is defined in its own DDE:

unit_number.

Additional Sizing Assumptions:
None

toll_segment_users

This data flow contains a calculation of the number of users of a toll segment. .

Additional Sizing Assumptions:
SIZE=2;

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}.

Additional Sizing Assumptions:
SIZE=list_size+TOLL_SEGS{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 traveler card / payment instrument being used by the driver at a toll plaza. This may be either a credit identity, or the value of the credit currently stored by the traveler card / payment instrument, to which tolls may be charged. The data flow consists of the following items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ toll_segment_identity.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

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. This update will have loaded the identity of the toll segment at which the vehicle entered the toll

road and is for use in charging for the vehicle's use of the toll road. The data flow consists of the following data item which is defined in its own DDE:

toll_tag_data.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=8;

toll_to_cvo

This data flow is sent from the Provide Electronic Payment Services function to the Manage Commercial Vehicles function. It contains data that provides the results of payments for tolls. The data flow consists of the following item which is defined in its own DDE:

cvo_toll_payments
+ cvo_payments_data.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+1000000{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}.

Additional Sizing Assumptions:
SIZE=list_size+1000000{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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=1024000;

tomcm-env_sensor_data

This data flow provides outputs from a set of environment sensors that are monitored by the maintenance and construction function. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}.

Additional Sizing Assumptions:
None

tomcm-m_and_c_plan_feedback

This data flow is used by the Manage Maintenance and Construction function to send feedback regarding proposed work plans to other maintenance and construction facilities whose areas of operation are outside those of the local facility. It contains comments and suggested changes to proposed maintenance and construction work plan schedules and activities. This information will be used to influence the work schedule to minimize impact to other system operations and the transportation system. .

Additional Sizing Assumptions:
SIZE=32;

tomcm-m_and_c_work_plans

This data flow is used by the Manage Maintenance and Construction function to send data to other maintenance and construction facilities whose areas of operation are outside those of the local facility. It contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. .

Additional Sizing Assumptions:
SIZE=32;

tomcm-resource_coordination_data

This data flow represents information about resources that is to be shared between maintenance and construction facilities located in different geographic areas. Included in this data flow are requests for use and availability of those resources. .

Additional Sizing Assumptions:
SIZE=4096;

tomcm-road_weather_info

This data flow contains environmental and road weather information that has been formatted for distribution to other maintenance and constructions organizations. The data may be filtered or aggregated prior to this formatting. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

tomcm-roadway_maint_status

This data flow is used by the Manage Maintenance and Construction function to send data to other maintenance and construction facilities whose areas of operation are outside those of the local facility. It contains information summarizing the current roadway maintenance activities. This also includes maintenance fleet operations affecting the road network such as winter maintenance (snow plow schedules and status). The data flow consists of the following data item which is defined in its own DDE:

current_roadway_maintenance_status.

Additional Sizing Assumptions:
None

tomcm-work_zone_images

This data flow contains analog or digitized video images of a work zone that are being released for external viewing, in this case to another maintenance and construction management agency. This data flow consists of data from the following data items which are defined in their own DDE:

work_zone_images
+ fomcm-work_zone_images
+ work_zone_intrusion_video_image.

Additional Sizing Assumptions:
None

tomcm-work_zone_info

This data flow contains a summary of maintenance and construction work zone activities that have been tailored for providing to another maintenance and construction organization. This information includes the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. The data flows also contains work zone resource status. This data flow consists of data from the following data item which is defined in its own DDE:

work_zone_data_for_status.

Additional Sizing Assumptions:
None

tomcv-crew_movements

This data flow is sent to another maintenance and construction vehicle and contains the location of a maintenance and construction field personnel within a work zone area and some form of personnel identifier that would allow transmitting of a warning to the specific personnel based upon detection of intrusion at a certain point within a work zone. The data flow may also contain an identifier of the sending maintenance and construction vehicle to allow transmission of warnings to be sent back to this specific vehicle. .

Additional Sizing Assumptions:
SIZE=12;

tomcv-env_conditions

This data flow contains environmental sensor data collected on-board a maintenance and construction vehicle. The data may represent the actual sensor output, or may be a filtered or processed version for display to the operator of another maintenance and construction vehicle. It consists of the following data items each of which is defined in its own DDE:

sensor_identity
+ environment_sensor_output.

Additional Sizing Assumptions:
None

tomcv-vehicle_operational_data

This data flow is sent to other vehicles from the Manage Maintenance and Construction function and contains information about the maintenance and construction activity performed by the vehicle. Operational data includes the operational state of the maintenance equipment (e.g., blade up/down, spreader pattern) and a record of the actual work performed. It is used to coordinate efforts between maintenance and construction vehicles. It consists of the following data items each of which is defined in its own DDE:

vehicle_id_for_mcv
+ operational_data_for_mcv.

Additional Sizing Assumptions:
None

tomcv-work_zone_intrusion_alert_on_board

This data flow contains a time stamped indication that a work zone intrusion alert has been generated by a device on-board a maintenance and construction vehicle. The data flow could also identify the form in which the alert was given (e.g. audible warning, visual warning, or in-vehicle warning) .

Additional Sizing Assumptions:
SIZE=8;

tomcv-work_zone_intrusion_detection_on_board

This data flow contains the time stamped output of an on-board intrusion detection device indicating that an intrusion has been detected. This intrusion detection is sent to another maintenance and construction vehicle. .

Additional Sizing Assumptions:
SIZE=8;

tomcv-work_zone_intrusion_warning_to_crew

This data flow contains a warning sent by a maintenance and construction vehicle to another maintenance and construction vehicle that an intrusion into the work zone has been detected. The data flow may contain the identity of the sending vehicle, the identity of the receiving vehicle, the location of the intrusion, and the identity of the maintenance and construction field personnel that are at risk due to the location and nature of the intrusion. .

Additional Sizing Assumptions:
SIZE=16;

top-parking_coordination_data

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

Additional Sizing Assumptions:
SIZE=32;

tors-device_control

This data flow is sent to the Other RS terminator and contains control information for an indicator (e.g., ramp meter controller, intersection controller). It is used for coordination between peer indicators or for information transfer between devices functioning in a hierarchical arrangement. In this case, the Other RS terminator represents the indicator to which control commands are being sent. This data flow consists of the following items each of which is defined in its own DDE:

t_other_rw_ic_control_to_ic
+ t_other_rw_fc_control_to_fc.

Additional Sizing Assumptions:
None

tors-device_status

This data flow is sent to the Other RS terminator and contains status and fault information for an indicator (e.g., ramp meter controller, intersection controller). The data flow can contain the actual state of operation of the indicators. It is used for coordination between peer indicators or for information transfer between devices functioning in a hierarchical arrangement. In this case, the Other RS terminator represents the indicator to which status is being sent. This data flow consists of the following items each of which is defined in its own DDE:

t_other_rw_ic_status_to_ic
+ t_other_rw_fc_status_to_fc.

Additional Sizing Assumptions:
None

tors-roadway_info_data_from_devices

This data flow is sent to the Other RS terminator and contains data from a device (automated road treatment function, barrier system, or safeguard system) for display on a roadway information device. The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. In this case, the Other RS terminator represents the roadway information device (e.g. dynamic message sign). This data flow consists of the following items each of which is defined in its own DDE:

t_other_rw_dms_auto_treat_data_from_roadway
+ t_other_rw_dms_barrier_activated_from_roadway

+ t_other_rw_dms_safeguard_activated_from_roadway.

Additional Sizing Assumptions:
None

tors-roadway_info_data_from_sensors

This data flow is sent to the Other RS terminator and contains sensor data from a roadside sensor (such as environmental or individual vehicle speed sensor) for display on a roadway information device. The data flow may contain the actual data from which instructions to the driver and traveler can be produced by roadway information devices or it may contain a message code that causes a specific display. In this case, the Other RS terminator represents the roadway information device (e.g., the dynamic message sign). This data flow consists of the following items each of which is defined in its own DDE:

t_other_rw_env_sensor_data_to_dms
+ t_other_rw_individual_vehicle_speed_to_dms
+ t_other_rw_speed_warning_to_dms.

Additional Sizing Assumptions:
None

tors-sensor_control

This data flow is sent to the Other RS terminator and provides control commands for a roadside sensor (environmental or traffic). In this case, the Other RS terminator represents the sensor to which a roadside or freeway indicator (e.g., intersection controller, ramp meter controller), or an automated road treatment device sends the sensor control commands. This data flow consists of the following items each of which is defined in its own DDE:

t_other_rw_env_sensor_control_by_auto_treat_device
+ t_other_rw_ic_control_to_traffic_sensor
+ t_other_rw_fc_control_to_traffic_sensor.

Additional Sizing Assumptions:
None

tors-sensor_data

This data flow is sent to the Other RS terminator and provides data from a roadside sensor (environmental, traffic, or work zone intrusion). In this case, the Other RS terminator represents a roadside or freeway indicator (e.g., intersection controller, ramp meter controller), or an automated road treatment device, or a work zone intrusion alert device that receives the sensor data. This data flow consists of the following items each of which is defined in its own DDE:

t_other_rw_env_sensor_data_for_auto_treat_device
+ t_other_rw_work_zone_intrusion_detection
+ t_other_rw_traffic_sensor_data_to_fc
+ t_other_rw_traffic_sensor_data_to_ic.

Additional Sizing Assumptions:
None

tors-sensor_status

This data flow is sent to the Other RS terminator and provides data from a roadside traffic sensor. In this case, the Other RS terminator represents a roadside or freeway indicator (e.g., intersection controller, ramp meter controller)

that receives the sensor status. This data flow consists of the following items each of which is defined in its own DDE:

t_other_rw_traffic_sensor_status_to_fc
+ t_other_rw_traffic_sensor_status_to_ic.

Additional Sizing Assumptions:
None

tota-toll_charges_reconciliation_data

This data is sent to the Other Toll Administration terminator from the Process Electronic Toll Payment function to support the reconciliation of toll charges between agencies. .

Additional Sizing Assumptions:
SIZE=200;

tota-toll_pricing_data

This data is sent to the Other Toll Administration terminator from the Process Electronic Toll Payment function to share toll pricing data between separately managed toll agencies. .

Additional Sizing Assumptions:
SIZE=200;

totm-data_request

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

other_TMC_data_request
+ other_TMC_incidents_request
+ tmc_identity.

Additional Sizing Assumptions:
None

totm-traffic_control_and_status

This data flow is sent to the other traffic centers by the Manage Traffic function and contains traffic control and status data which is being transferred from one Traffic Management Center (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
+ roadway_information_data
+ roadway_information_status
+ tmc_identity.

Additional Sizing Assumptions:
None

totm-transfer_data

This data flow is sent to the other traffic centers by the Manage Traffic function and contains the data which is being transferred from one Traffic Management Center (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
+ disaster_traffic_data_for_other_traffic_management
+ evacuation_traffic_data_for_other_traffic_management
+ tmc_identity.

Additional Sizing Assumptions:
None

totm-transfer_local_TMC_data_FB

This data flow is sent to the other traffic centers (TM) from the Manage Traffic function and contains the data which is being transferred from the local Traffic Management Center (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:

totm-transfer_data
+ totm-traffic_control_and_status.

Additional Sizing Assumptions:
None

totrm-transit_fare_data_coordination

This data flow is sent to Other Transit Management centers by the Manage Transit function and contains data for the other transit center about services provided by the local center which have an interface into the area(s) covered by services from the other center. The data flow consists of the following data items each of which is defined in its own DDE:

fare_reconciliation
+ trmc_identity
+ transit_fare_data.

Additional Sizing Assumptions:
None

totrm-transit_service_data

This data flow is sent to Other Transit Management centers by the Manage Transit function and contains data for the other transit center about services provided by the local center which have an interface into the area(s) covered by services from the other center. The data flow consists of the following data items each of which is defined in its own DDE:

trmc_identity
+ traffic_incident_data_for_transit
+ transit_transfer_cluster_list
+ transit_transfer_point_list
+ transit_vehicle_deviations_details
+ transit_vehicle_passenger_data.

Additional Sizing Assumptions:
None

totrm-transit_traveler_information

This data flow is sent to Other Transit Management centers by the Manage Transit function and contains data for the other transit center about services provided by the local center which have an interface into the area(s) covered by services from the other center. The data flow consists of the following data items each of which is defined in its own DDE:

transit_services_for_advisory_data
+ transit_vehicle_advisory_eta
+ trmc_identity.

Additional Sizing Assumptions:
None

tourist_information

This data store is used within the Provide Driver and Traveler Services function to contain data for use by travelers when requesting tourist type information. It consists of the following data items each of which is defined in its own DDE:

yellow_pages_general_information
+ yellow_pages_specific_information
+ yellow_pages_transaction_information
+ fevp-event_information_for_travelers
+ incident_information
+ fws-current_weather_observations
+ fws-weather_forecasts
+ road_conditions
+ road_weather_conditions
+ evacuation_data_for_isp
+ transit_evacuation_data_for_isp
+ roadway_detours_and_closures_for_isp.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=2;

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). .

Additional Sizing Assumptions:
SIZE=2;

tp-dms_indication

This data flow is sent to pedestrians by the Manage Traffic function and contains a textual message either warning them of a potential hazard, or providing mandatory instructions as to the availability of pedestrian access, or providing them with information regarding the amount of time remaining to safely cross the street. .

Additional Sizing Assumptions:
SIZE=64;

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). .

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=4;

tpo-parking_lot_status

This data flow contains either static or dynamic information on a set of parking lots. This data flow is made up of the following data items each of which is defined in its own DDE:

list_size{parking_lot_identity
+ parking_lot_static_data_for_coordination
+ dynamic_parking_information_for_coordination}.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=8;

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. .

Additional Sizing Assumptions:
SIZE=10240000;

track_status

This data flow represents the current status of the wayside equipment interface and the processes within the Manage HRI Rail Traffic process. It is used to determine the overall health and status of the HRI by the Monitor HRI Status process.

wayside_status
+ hri_rail_alert.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

traffic_control_device_data

This data flow is used within the Manage Traffic function to show control and configuration of 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:

dms_data
+ har_data.

Additional Sizing Assumptions:
None

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
+ smart_probe_reader_status
+ traffic_sensor_status
+ vehicle_sign_data_status.

Additional Sizing Assumptions:
None

traffic_control_request

This data flow contains a request for traffic management center to implement a control strategy on the transportation network. The control strategy could be used to support an emergency response or recovery effort. .

Additional Sizing Assumptions:
SIZE=48;

traffic_control_response

This data flow contains a response from a traffic management center regarding a control strategy that has been implemented on the transportation network. The control strategy could be used to support an emergency response or recovery effort. .

Additional Sizing Assumptions:
SIZE=48;

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. .

Additional Sizing Assumptions:
SIZE=1024;

traffic_data_511_request

This data flow is sent by the Provide Driver and Traveler Services function to the Manage Traffic function and contains the request for the provision of traffic data for the region specific for output to a 511 traveler information system. It consists of the following data items each of which is defined in its own DDE:

traffic_data_request
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
None

traffic_data_advisory_request

This data flow is used by the Provide Driver and Traveler Interface facility within the Provide Driver and Traveler 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. .

Additional Sizing Assumptions:
SIZE=3;

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_management_event_log
+ traffic_management_event_log_attributes.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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 data. .

Additional Sizing Assumptions:
SIZE=3;

traffic_data_flow

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveler Services function. It contains traffic data (including parking lot information) either to be provided direct to travelers or for use by the route guidance and route selection processes, or for archival. The data flow consists of the following data items each of which is defined in its own DDE:

current_roadway_network_state
+ 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_511
+ traffic_data_for_ridesharing
+ prediction_data
+ planned_events
+ vehicle_signage_data
+ vehicle_smart_probe_data_output
+ traffic_data_request_for_archive
+ roadway_detours_and_closures_for_isp
+ roadway_detours_and_closures
+ static_parking_information_for_isp
+ dynamic_parking_information_for_isp.

Additional Sizing Assumptions:

None

traffic_data_for_511

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveler Services function. It is used to provide data on the traffic flowing in the road network, plus that which is predicted to flow in the network for output to a 511 traveler information system. The flow consists of the following items each of which is defined in its own DDE:

current_data_for_dissemination
+ predicted_data_for_dissemination
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
None

traffic_data_for_advisories

This data flow is used within the Provide Driver and Traveler 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}.

Additional Sizing Assumptions:
None

traffic_data_for_advisory_output

This data flow is used to provide data on the traffic flowing in the road network, plus that which is predicted to flow in the network and consists the following items each of which is defined in its own DDE:

source_identity
+ current_data_for_retrieval
+ long_term_data_for_retrieval
+ predictive_data_for_retrieval.

Additional Sizing Assumptions:
None

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_management_event_log
+ traffic_management_event_log_attributes.

Additional Sizing Assumptions:
None

traffic_data_for_broadcast

This data flow is used within the Provide Driver and Traveler 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:

current_incident_data
+ current_roadway_network_data
+ parking_lot_storage_data
+ link_state_data_for_broadcast
+ roadway_environment_conditions
+ area_air_quality_index
+ current_roadway_maintenance_status
+ road_conditions
+ road_weather_conditions
+ work_zone_data_for_status.

Additional Sizing Assumptions:
None

traffic_data_for_broadcast_to_kiosks

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveler 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_dissemination
+ predicted_data_for_dissemination.

Additional Sizing Assumptions:
None

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 traveler's personal device. The flow consists of the following items each of which is defined in its own DDE:

source_identity
+ current_data_for_dissemination
+ predicted_data_for_dissemination.

Additional Sizing Assumptions:
SIZE=source_identity+25{{current_data_for_dissemination+predicted_data_for_dissemination}/MAX_SEGS};

traffic_data_for_cvo

This data flow is sent from the Display and Output Traffic Data function to the Manage Commercial Vehicle Fleet Operations 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. The flow consists of the following items each of which is defined in its own DDE:

source_identity
+ current_data_for_dissemination
+ predicted_data_for_dissemination.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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

+ predictive_data_for_retrieval.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
SIZE=tmc_identity+MAX_SEGS{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 Traveler Services function. It is used to provide data on the traffic flowing in the road network, plus that which is predicted to flow in the network for 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_dissemination
+ predicted_data_for_dissemination.

Additional Sizing Assumptions:
None

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 traveler'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_dissemination
+ predicted_data_for_dissemination
+ traveler_identity.

Additional Sizing Assumptions:

None

traffic_data_for_ridesharing

This data flow is sent from the Manage Traffic function to the Ridesharing facility within the Provide Driver and Traveler Services function. It is used to provide data on the traffic flowing in the road network, plus that which is predicted to flow in the network and consists the following items each of which is defined in its own DDE:

tmc_identity
+ traffic_data_for_distribution.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

traffic_data_guidance_request

This data flow is used by the Provide Guidance and Trip Planning facility within the Provide Driver and Traveler 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. .

Additional Sizing Assumptions:
SIZE=3;

traffic_data_kiosk_request

This data flow is sent by the Provide Driver and Traveler 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_request.

Additional Sizing Assumptions:
None

traffic_data_kiosk_request_for_archive

This data flow is sent from the Manage Traffic Function to the Provide Driver and Traveler 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_kiosk_request.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=64;

traffic_data_personal_request

This data flow contains the request for the provision of traffic data for output at a traveler's personal device. It consists of the following data items each of which is defined in its own DDE:

traffic_data_request
+ traveler_identity.

Additional Sizing Assumptions:
None

traffic_data_personal_request_for_archive

This data flow is sent from the Manage Traffic Function to the Provide Driver and Traveler Services function. It is used to provide data to the data archive about requests made for traffic data via a traveler's personal device. It consists of the following data item which is defined in its own DDE:

traffic_data_personal_request.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=5;

traffic_data_request_for_archive

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveler Services function. It is used to provide details of requests for traffic data made by travelers 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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=512000;

traffic_data_ridesharing_request

This data flow is used by the Ridesharing facility within the Provide Driver and Traveler 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. .

Additional Sizing Assumptions:
SIZE=1;

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.

Additional Sizing Assumptions:
None

traffic_detour_control_for_other_traffic

This data flow contains request from traffic management for other traffic management centers to provide control measures that will support detour routes assigned. The request could be for a long term or short term control. It might also include a request to remove vehicle restrictions such as HOV on facilities. .

Additional Sizing Assumptions:
SIZE=48;

traffic_detour_control_from_other_traffic

This data flow contains request from other traffic management to provide control measures that will support detour routes established by the other traffic management center. The request could be for a long term or short term control. It might also include a request to remove vehicle restrictions such as HOV on facilities. .

Additional Sizing Assumptions:
SIZE=48;

traffic_detour_data_from_other_traffic

This data flow is used to coordinate traffic detours, routes and restrictions with other traffic management. It contains the detour and route information sent form other traffic management. The data flow consists of the following data items which are defined in their own DDE:

traffic_detour_control_from_other_traffic
+ traffic_detour_info_from_other_traffic.

Additional Sizing Assumptions:
None

traffic_detour_data_to_other_traffic

This data flow is used to coordinate traffic detours, routes and restrictions with other traffic management. It contains the detour and route information sent to other traffic management. The data flow consists of the following data items which are defined in their own DDE:

traffic_detour_control_for_other_traffic
+ traffic_detour_info_for_other_traffic.

Additional Sizing Assumptions:
None

traffic_detour_info_for_other_traffic

This data flow contains information about detours, routes, and control strategies established by traffic management center that might influence traffic patterns and demand on facilities in another center. .

Additional Sizing Assumptions:
SIZE=48;

traffic_detour_info_from_other_traffic

This data flow contains information about detours, routes, and control strategies established by another traffic management center that might influence local traffic patterns and demand on facilities. .

Additional Sizing Assumptions:
SIZE=48;

traffic_device_control

This data flow controls the state of traditional traffic control devices at a local HRI. .

Additional Sizing Assumptions:
SIZE = 128;

traffic_device_control_state

This data flow contains the state of standard traffic control devices at a grade crossing. .

Additional Sizing Assumptions:
SIZE = 128;

traffic_device_status_to_roadway_m_and_c

This DFD flow represents the data flows from Provide Device Control to Manage Roadway M&C Activities and includes roadway equipment status from a traffic center and DMS status from an automated treatment device. It consists of the following items each of which is defined in its own DDE:

device_status_to_roadway_m_and_c
+ dms_auto_treat_status_to_maint
+ field_equipment_status_from_traffic
+ f_other_rw_env_sensor_data_for_auto_treat_device.

Additional Sizing Assumptions:
None

traffic_disaster_response_plan

This data flow contains the resources that are available from traffic management that may be used for the current disaster. The data flow consists of the following data items which are defined in their own DDE:

disaster_response_traffic_available_resources.

Additional Sizing Assumptions:
None

traffic_emergency_status_report

This flow contains the status of traffic management in supporting an emergency event. The data flow consists of the following data items which are defined in their own DDE:

resource_deployment_status.

Additional Sizing Assumptions:
None

traffic_evacuation_plan

This data flow contains the resources that are available from traffic management to be used for an evacuation. This set may be modified from the resources that were identified in the preplanning stages. The data flow consists of the following data item which is defined in its own DDE:

evacuation_traffic_available_resources.

Additional Sizing Assumptions:
None

traffic_evacuation_resource_request

This flow contains a request for traffic in supporting an evacuation. It provides a set of requested resources that evacuation management has been told are available for use. The data flow consists of the following data item which is defined in its own DDE:

traffic_evacuation_plan.

Additional Sizing Assumptions:
None

traffic_evacuation_status

This data flow contains a status of traffic operations response to an evacuation. It includes information regarding response to requests for traffic resources, etc. In general it provides information regarding how well the system is responding to the evacuation, and may be used to improve on the current evacuation plan. .

Additional Sizing Assumptions:
SIZE=48;

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.

Additional Sizing Assumptions:
None

traffic_image_data

This data flow contains the data produced by processing image data obtained from visual detection systems. This data is therefore that which can be obtained from systems such as traffic surveillance closed circuit television (cctv). It is analyzed and used to detect traffic conditions such as flow, occupancy, possible incidents, etc. This data flow consists of the following items each of which is defined in its own DDE:

incident_analysis_data
+ incident_video_image.

Additional Sizing Assumptions:
None

traffic_impact_criteria

This data contains the criteria for calculating the impact an incident will have on traffic flows. .

Additional Sizing Assumptions:
SIZE=256;

traffic_incident_data_for_transit

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

current_incident_details.

Additional Sizing Assumptions:
None

traffic_m_and_c_data

This DFD flow represents the data flows from Manage Traffic to Manage Maintenance and Construction. The DFD flow consists of the following data flows each of which are defined in its own DDE:

env_sensor_data_for_traffic_speed_monitoring
+ infrastructure_sensor_data_for_mcv
+ infrastructure_sensor_status_for_mcv
+ road_network_info_from_traffic
+ incident_info_from_traffic
+ traffic_device_status_to_roadway_m_and_c
+ roadside_device_control_to_work_zone
+ incident_data_for_work_zone
+ surveillance_data_for_env
+ sensor_status_to_roadway_m_and_c
+ sensor_vehicle_speed_data
+ traffic_resource_to_m_and_c
+ infrastructure_sensor_data_for_m_and_c
+ infrastructure_sensor_status_for_m_and_c
+ traffic_resource_to_m_and_c
+ f_other_rw_work_zone_intrusion_detection
+ roadway_detours_and_closures_for_m_and_c
+ disaster_network_status_from_traffic_to_m_and_c.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:

SIZE=32;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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.
.

Additional Sizing Assumptions:
SIZE=32;

traffic_management_event_log

This data flow contains the event log for traffic management operations, such as recordings of the deployments of barriers or safeguard systems, and is for use by the Manage Archived Data function. The data flow consists of the following data item which is defined in its own DDE:

barrier_system_data_for_archive
+ safeguard_system_data_for_archive.

Additional Sizing Assumptions:
None

traffic_management_event_log_attributes

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

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

Additional Sizing Assumptions:
None

traffic_management_request

This data flow is used by hri to request services or data from other traffic management functions .
Additional Sizing Assumptions:
SIZE = 128;

traffic_management_storage_data

This data flow is used within the Manage Traffic function. It contains the indicator control and response states plus the selected traffic control strategy(ies) for the road (surface street) and highway network served by the function. The data is a subset of that in the current and historical data stores. The data flow consists of the following data items each of which is defined in its own DDE:

indicator_control_storage_data
+ indicator_input_storage_data
+ selected_strategy.

Additional Sizing Assumptions:
None

traffic_network_status_for_disaster_and_evacuation

This data flow is used to communicate the general status of the transportation system as seen by traffic management during a disaster or evacuation. The data flow consists of the following data items each of which are defined in their own DDE:

network_status_from_traffic_for_disaster
+ network_status_from_traffic_for_evacuation.

Additional Sizing Assumptions:
None

traffic_operations_resource_request

This data flow is used within the Manage Traffic function as a request from the operations personnel for information on details of incident resources, such as equipment and support for incident response and clean up. .

Additional Sizing Assumptions:
SIZE=64;

traffic_operations_resource_response

This data flow is used within the Manage Traffic function and provides the status of resource request information. .

Additional Sizing Assumptions:
SIZE=64;

traffic_preplanned_disaster_response_plan

This data flow contains the preplanned disaster response and recovery plan for traffic management. These plans contain assets, signal timing plans, etc. that traffic management has planned to utilize prior to the occurrence of a disaster. The data flow consists of the following data item which is defined in its own DDE:

planned_disaster_response_traffic_available_resources.

Additional Sizing Assumptions:
None

traffic_preplanned_evacuation_plan

This data flow contains a description of the preplanned support of traffic management to an evacuation. These plans contain assets, signal timing plans, etc. that traffic management has planned to utilize to support an evacuation. The data flow consists of the following data item which is defined in its own DDE:

planned_evacuation_traffic_available_resources.

Additional Sizing Assumptions:
None

traffic_probe_info_from_evs_for_traffic

This data flow contains the aggregated route segment usage and travel times collected from the ITS-equipped emergency vehicles. This information, collected from the emergency vehicle probes, is used with other sources of road network information to provide a view of the network for maintenance and construction vehicle routing and work activity scheduling. The data flow consists of the following items each of which is defined in its own DDE:

emergency_vehicle_tracking_data.

Additional Sizing Assumptions:
None

traffic_probe_info_from_info_provider

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Maintenance and Construction function and contains the aggregated route segment usage and travel times collected from the ITS-equipped personal vehicles. This information, collected from these vehicle probes, is used with other sources of road network information to provide a view of the network for maintenance and construction vehicle routing and work activity scheduling. The data flow consists of the following items each of which is defined in its own DDE:

vehicle_probe_data_amalgamation.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=3;

traffic_resource_to_m_and_c

This DFD flow represents the data flows from Manage Incidents to Manage Roadway M&C Activities and includes resource coordination information. It consists of the following items each of which are defined in its own DDE:

video_device_equip_status_for_m_and_c
+ m_and_c_plan_feedback_from_traffic
+ m_and_c_resource_request_from_traffic
+ roadway_maint_action_req_from_traffic
+ winter_maint_action_req_from_traffic.

Additional Sizing Assumptions:
None

traffic_resources_available

This data flow contains a listing of the vehicles and operators that transit has available for use. The data flow consists of the following data items which are defined in their own DDE:

resource_deployment_status.

Additional Sizing Assumptions:
None

traffic_resources_for_disaster

This data flow contains a listing of resources available for use from traffic management for use during a disaster response and recovery procedure. The data flow consists of the following data items which are defined in their own DDE:

traffic_resources_available.

Additional Sizing Assumptions:
None

traffic_resources_for_evacuation

This data flow contains a listing of resources available for use from traffic management for use during an evacuation. The data flow consists of the following data items which are defined in their own DDE:

traffic_resources_available.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
SIZE=list_size+1{SENSOR_LOCATION+SENSOR_LINK}{station_id+sensor_identity
+traffic_sensor_output};

traffic_sensor_data_for_automated_lane_changing

This data flow contains traffic sensor data that is used to determine the operation of the automated lane changing function. The sensor data includes volume, occupancy, speed, headways, vehicle characteristics, and merging distance. It consists of the following data items each of which is defined in its own DDE:

traffic_sensor_data.

Additional Sizing Assumptions:
None

traffic_sensor_equip_status_for_m_and_c

This data flow provides a report to the Manage Maintenance and Construction function of the status of a traffic sensor. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_status}.

Additional Sizing Assumptions:
None

traffic_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. .

Additional Sizing Assumptions:
SIZE=24;

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. .

Additional Sizing Assumptions:
SIZE=7;

traffic_sensor_status

This data flow is used 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. .

Additional Sizing Assumptions:
SIZE=24;

traffic_surveillance_data

This data flow represents highway traffic management surveillance information that is relevant to local ITS railroad grade crossing traffic management (e.g. stalled vehicles within crossings, crossing signal malfunctions, unusual traffic, detected incidents, etc.). .

Additional Sizing Assumptions:
SIZE=128;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=MPEG{ft-traffic_images};

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}.

Additional Sizing Assumptions:
SIZE=list_size+TRAFFIC_VIDEO_CAMERAS{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.

Additional Sizing Assumptions:
None

train_alert

This data flow represents a binary indication that a train is either approaching or a train is not approaching the HRI. This is the minimum flow component from wayside equipment to the HRI process fir an active crossing. .

Additional Sizing Assumptions:
SIZE = 1;

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. .

Additional Sizing Assumptions:
SIZE = 1;

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.

Additional Sizing Assumptions:
None

train_id

A unique identification number assigned to each train and used to identify which of several trains approaching an HRI is being referenced. .

Additional Sizing Assumptions:
SIZE = 6;

train_length

This data element represents train length in feet. .

Additional Sizing Assumptions:
SIZE = 4;

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. .

Additional Sizing Assumptions:
SIZE = 128;

train_ops_plan

This data flow contains data from traffic management to be used to coordinate overall operations with the hri closures. .
Additional Sizing Assumptions:
SIZE = 128;

train_sense_data

This data flow is used within the Manage Traffic function. It contains train data acquired from wayside equipment and allows traffic management to control or monitor roadside equipment in conjunction with HRI conditions. The data flow consists of the following data items each of which is defined in its own DDE:

crossing_id
+ hri_sensor_data.

Additional Sizing Assumptions:
None

train_speed

This data element represents train speed as an integer. .

Additional Sizing Assumptions:
SIZE = 3;

train_stopping_distance

This is a data element that represents the computed (emergency) stopping distance, in feet, of an approaching train. This would probably be based on a train on-board computer, the trains manifest and motive power and the current track conditions. .

Additional Sizing Assumptions:

SIZE = 4;

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 traveler. .

Additional Sizing Assumptions:
SIZE=8;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

transfer_fares_to_charges

This data flow is used within the Provide Electronic Payment Services function. It is sent from the transit fare payment facility to the parking lot charge payment facility and contains the following data items each of which is defined in its own DDE:

advanced_charges
+ advanced_fares_confirm.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

transfer_tolls_to_fares

This data flow is used within the Provide Electronic Payment Services function. It is sent from the toll payment facility to the transit fare payment facility and contains the following data items each of which is defined in its own DDE:

advanced_fare_details
+ advanced_tolls_confirm.

Additional Sizing Assumptions:
None

transit_advisory_data

This data flow is used within the Provide Driver and Traveler Services function to provide traffic and travel advisory data to drivers and travelers in vehicles, including users of the transit system. The advisory information includes data about traffic incidents and conditions, and transit 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.

Additional Sizing Assumptions:
None

transit_advisory_data_request

This data flow is used within the Provide Driver and Traveler Services function to request that advisory data be output to a driver or a traveler in a transit vehicle. The scope and transit route number data will be provided by the driver or traveler, 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_vehicle_identity.

Additional Sizing Assumptions:
None

transit_advisory_vehicle_information

This data flow is used within the Manage Transit function from data received from the Provide Driver and Traveler Information function. The data flow contains information about other services requested by a traveler on-board a transit vehicle. These other services will be for what are called 'yellow pages' services, e.g., hotels, restaurants, theaters, etc. .

Additional Sizing Assumptions:
SIZE=2048;

transit_archive_catalog

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

Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=32;

transit_archive_data

This data flow from Manage Transit to Manage Archive Data contains the archive data stored in the Manage Transit function along with the meta data describing the data as collected from field equipment. This data can include a catalog of the data held by the function. This data flow is made up of transit passenger operational data, transit deployment data, traveler payment data, transit emergency data, transit security data, maintenance and personnel data. This data flow is made up of the following items each of which is defined in its own DDE:

transit_archive_catalog
+ transit_data_for_archive.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

transit_archive_status

This data flow is sent from the Manage Archived Data function to the Manage Transit function. It is the status returned when transit archive data is sent from the Manage Transit function to the Manage Archived Data function.
.

Additional Sizing Assumptions:
SIZE=32;

transit_changes_in_speed

This data flow is used within the Manage Transit function and contains corrections to the desired average speed for each segment in the current regular transit route. This speed value is that which the transit vehicle operator must achieve between successive transit stops in order to be compliant with the revised transit schedule. These corrections are intended to enable the transit vehicles on a particular route to return to their scheduled service for that route. .

Additional Sizing Assumptions:
SIZE=256;

transit_changes_in_stops

This data flow is used within the Manage Transit function and contains corrections to the stops on the current regular transit route. These corrections may be to delete stops because the route has also been changed (see separate data flow), or to add stops so that travelers can use such things as alternative mode transfer facilities. The corrections are intended to enable the transit vehicles on a particular route to return to their scheduled service for that route. .

Additional Sizing Assumptions:
SIZE=256;

transit_conditions_advisories_request

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Transit function. It is used to request details of the current state of transit vehicle operations for use in the preparation of data for driver and traveler advisories. .

Additional Sizing Assumptions:
SIZE=2;

transit_conditions_demand_request

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Traffic function. It is used to request details of the current state of transit vehicle operations for use in demand forecasting calculations carried out by the Manage Demand facility. .

Additional Sizing Assumptions:
SIZE=2;

transit_conditions_guidance_request

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Transit function. It is used to request details of the current state of transit vehicle operations for use in the preparation of data for on-line driver and traveler guidance. .

Additional Sizing Assumptions:
SIZE=2;

transit_confirmation_flag

This data flow is used within the Manage Transit function to indicate that a paratransit service is to be used or not. .

Additional Sizing Assumptions:
SIZE=1;

transit_coordination_data

This data flow is sent from the Manage Transit function to the Manage Emergency Services function. It is used to provide data on the way in which the response to a transit incident should be coordinated. The data flow consists of the following data items each of which is defined in its own DDE:

transit_coordination_information
+ transit_fleet_operation_acknowledge
+ transit_response_to_incident.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1024;

transit_data

This data flow is sent from the Manage Transit function to the Provide Driver and Traveler Services function and contains information that is being provided in response to requests from drivers or travelers. It consists of the following data items each of which is defined in its own DDE:

paratransit_personal_schedule
+ transit_incident_data
+ transit_running_data_for_advisory_output
+ transit_running_data_for_guidance
+ transit_services_for_advisory_data
+ transit_services_for_distribution_to_kiosks
+ transit_services_for_distribution_to_personal_devices
+ transit_services_for_guidance
+ transit_services_for_kiosks
+ transit_services_for_personal_devices
+ transit_services_for_511
+ transit_deviations_for_broadcast_to_kiosks
+ transit_deviations_for_broadcast_to_personal_devices
+ transit_deviations_for_511
+ transit_deviations_for_kiosks
+ transit_deviations_for_personal_devices
+ transit_deviations_personal_request_for_archive
+ transit_deviation_kiosk_request_for_archive
+ transit_vehicle_advisory_eta
+ transit_vehicle_arrival_time
+ transit_vehicle_eta_for_advisory
+ transit_vehicle_location_for_advisories
+ traveler_transit_information_for_transit_advisories
+ transit_transfer_point_list
+ transit_evacuation_data_for_isp
+ transit_traveler_wide_area_alert_info.

Additional Sizing Assumptions:
None

transit_data_archive

This data store is used within the Manage Transit function to hold data that is to be archived by the Manage Archived Data function. This data includes information, such as, passenger operational data, transit routes and schedule data, transit fares, maintenance and personnel data, transit multimodal information, and statistics and metrics data. The data store contains the following data items each of which is defined in its own DDE:

transit_archive_catalog
+ transit_operational_data_for_archive
+ transit_services_for_deployment
+ traveler_payments_transactions
+ transit_fare_transactions
+ transit_route_assign_for_archive
+ bad_transit_collected_fare_payment
+ bad_transit_roadside_fare_payment
+ bad_transit_vehicle_fare_payment
+ transit_vehicle_operator_info_for_archive
+ transit_incident_info_for_archive
+ transit_emergency_data_for_archive
+ transit_technician_info
+ transit_vehicle_maintenance_info
+ paratransit_service_data_for_archive

+ transit_vehicle_data_for_archive
+ transit_operational_data_attributes.

Additional Sizing Assumptions:
None

transit_data_for_archive

This data flow is sent from the Manage Transit function to the Manage Archived Data function. It is used to provide details of transit operational data for release to the data archive. This data flow is made up of the following items each of which is defined in its own DDE:

transit_operational_data_for_archive
+ transit_services_for_deployment
+ traveler_payments_transactions
+ transit_fare_transactions
+ transit_route_assign_for_archive
+ bad_transit_collected_fare_payment
+ bad_transit_roadside_fare_payment
+ bad_transit_vehicle_fare_payment
+ transit_vehicle_operator_info_for_archive
+ transit_incident_info_for_archive
+ transit_emergency_data_for_archive
+ transit_technician_info
+ transit_vehicle_maintenance_info
+ paratransit_service_data_for_archive
+ transit_vehicle_data_for_archive
+ transit_operational_data_attributes.

Additional Sizing Assumptions:
None

transit_deviation_data_received

This data flow is used within the Manage Transit function and contains an indication that new data about transit 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. .

Additional Sizing Assumptions:
SIZE=1;

transit_deviation_kiosk_request

This data flow is sent by the Provide Driver and Traveler Services function to the Manage Transit function and is a request for data on current transit 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_deviation_request.

Additional Sizing Assumptions:
None

transit_deviation_kiosk_request_for_archive

This data flow is sent by the Manage Transit function to the Provide Driver and Traveler Services function. It is used to provide data to the data archive about requests made for current transit 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.

Additional Sizing Assumptions:
None

transit_deviations_511_request

This data flow is sent by the Provide Driver and Traveler Services function to the Manage Transit function and is a request for data on current transit service deviations in the region specified for output to a 511 traveler information system. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_deviation_request
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
None

transit_deviations_for_511

This data flow is sent by the Manage Transit function to the Provide Driver and Traveler Services function and contains current transit service deviations for output to a 511 traveler information system. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_schedule_deviations
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
None

transit_deviations_for_broadcast_to_kiosks

This data flow is sent by the Manage Transit function to the Provide Driver and Traveler Services function and contains current transit service deviations for broadcast to a kiosk. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_schedule_deviations.

Additional Sizing Assumptions:
None

transit_deviations_for_broadcast_to_personal_devices

This data flow contains current transit service deviations for a particular route. This data will be broadcast to a traveler'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}.

Additional Sizing Assumptions:
SIZE=list_size+TRANSIT_SEGS{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 Traveler Services function and contains current transit 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.

Additional Sizing Assumptions:
None

transit_deviations_for_personal_devices

This data flow contains current transit service deviations for a particular route. This data will be output to a traveler's personal device. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ list_size
+ list_size{transit_vehicle_identity
+ transit_vehicle_achieved_time
+ transit_route_segment_number}.

Additional Sizing Assumptions:
SIZE=traveler_identity+list_size+TRANSIT_SEGS{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 Traveler Services function to the Manage Transit function and is a request for data on current transit service deviations for output to a traveler's personal device. When a portable device is being used by the traveler, the request can be modified so that only the data for a transit route specified by the traveler from the portable device is requested. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ transit_vehicle_deviation_request
+ transit_route_number.

Additional Sizing Assumptions:
None

transit_deviations_personal_request_for_archive

This data flow is sent by the Manage Transit function to the Provide Driver and Traveler Services function. It is used to provide data to the data archive about requests made for current transit service deviations via a traveler'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_deviations_personal_request.

Additional Sizing Assumptions:
None

transit_disaster_response_plan

This data flow contains the resources, schedules, routes, etc. that are available from transit management that may be used for the current disaster. The data flow consists of the following data items which are defined in their own DDE:

disaster_response_transit_available_resources
+ disaster_response_transit_schedule
+ disaster_response_transit_routes
+ disaster_response_transit_fares.

Additional Sizing Assumptions:
None

transit_emergency

This data flow is sent from the Manage Transit function to the Manage Emergency Services function and contains data about incidents within the transit network and fare payment violators. It consists of the following data items each of which is defined in its own DDE:

transit_coordination_data
+ transit_emergency_data
+ transit_incident_details
+ fare_collection_roadside_violation_information
+ fare_collection_vehicle_violation_information
+ alert_notification_status_from_transit.

Additional Sizing Assumptions:
None

transit_emergency_coordination_data

This data flow is sent from the Manage Emergency Services function to the Manage Transit function. It contains the following data items which are defined in their own DDE:

transit_incident_coordination_data
+ emergency_data_for_transit
+ wide_area_alert_notification_for_transit
+ traveler_information_restrictions_for_transit
+ deactivate_traveler_information_restrictions_for_transit.

Additional Sizing Assumptions:
None

transit_emergency_data

This data flow is sent from the Manage Transit function to the Manage Emergency Services function and contains details of an emergency on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

incident_location
+ incident_start_time
+ incident_duration
+ incident_severity.

Additional Sizing Assumptions:
None

transit_emergency_data_for_archive

This data flow is used within the Manage Transit function and contains details of an emergency on-board a transit vehicle to be stored for later use. It consists of the following data items each of which is defined in its own DDE:

transit_emergency_data
+ transit_media_emergency_interface_parameters
+ transit_vehicle_disable_from_operator
+ secure_transit_vehicle_alarm_request_for_transit.

Additional Sizing Assumptions:
None

transit_emergency_response_plan_from_personnel

This data flow is used by personnel in the Emergency Operations Center to coordinate disaster response and recovery plans with transit. It contains the response from transit system operator personnel regarding the modified response and recovery plan and evacuation plan. .

Additional Sizing Assumptions:
SIZE=256;

transit_emergency_response_plan_to_personnel

This data flow is used within the Manage Transit function to present the data for the coordination of response plans between the Transit function and the Emergency Management function for disasters and evacuations. This data flow is used to coordinate disaster response and recovery plans with transit. It contains information regarding the nature of the disaster, and the preplanned response and recovery plan for transit as well as evacuation planning. Given this information, transit can provide a plan that it will use that is appropriate for the given disaster. .

Additional Sizing Assumptions:
SIZE=256;

transit_emergency_status_report

This flow contains the status of transit operations in supporting an emergency event. .

Additional Sizing Assumptions:
SIZE=48;

transit_evacuation_data_for_isp

This data flow contains the schedules, routes, etc. that will be used by transit during an evacuation. The information is intended for distribution to travelers. The data flow consists of the following data items which are defined in their own DDE:

evacuation_transit_schedule
+ evacuation_transit_routes
+ evacuation_transit_fares.

Additional Sizing Assumptions:
None

transit_evacuation_plan

This data flow contains the resources that are available from transit management to be used for an evacuation. This set may be modified from the resources that were identified in the preplanning stages. The data flow consists of the following data items which are defined in their own DDE:

evacuation_transit_available_resources
+ evacuation_transit_schedule
+ evacuation_transit_routes
+ evacuation_transit_fares.

Additional Sizing Assumptions:
None

transit_evacuation_resource_request

This flow contains a request for transit in supporting an evacuation. It provides a set of requested resources, schedules, routes, etc. that evacuation management has been told are available for use. The data flow consists of the following data item which is defined in its own DDE:

transit_evacuation_plan.

Additional Sizing Assumptions:
None

transit_evacuation_status

This data flow contains a status of transit response to an evacuation. It includes information regarding response to requests for transit resources, schedule assignments, etc. In general it provides information regarding how well the transit system is responding to the evacuation, and may be used to improve on the current evacuation plan. .

Additional Sizing Assumptions:
SIZE=48;

transit_fare

This data flow is used within the Manage Transit function and contains the actual cost for the traveler to travel over a route in the transit network, i.e. the cost of going from a particular origin on a transit route to a particular destination on (possibly another) transit route. .

Additional Sizing Assumptions:
SIZE=2;

transit_fare_collection_data

This data item is used within the Manage Transit function. It contains data about the transit services that have been used and the fares that have been collected for their use. The data flow consists of the following data items each of which is defined in its own DDE:

transit_fare
+ transit_route_use_time
+ traveler_category
+ traveler_journey_end
+ traveler_journey_start.

Additional Sizing Assumptions:
None

transit_fare_data

This data flow is used within the Provide Electronic Payment Services function and contains details of the fares being currently charged for transit services. It consists of the following item which is defined in its own DDE:

list_size
+ list_size{transit_fares}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_TRANSIT_ROUTES{transit_fares};

transit_fare_data_request

This data flow is used within the Provide Electronic Payment Services function. It contains a request for the current transit fare price data to be provided from the store that is being used to calculate transit fares. .

Additional Sizing Assumptions:
SIZE=1;

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 transit services. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_route_number
    + transit_route_segment_list
    + traveler_category
    + transit_route_use_time}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_TRANSIT_ROUTES{transit_route_number+transit_route_segment_list
    +traveler_category+transit_route_use_time};

transit_fare_direct_details

This data flow contains details of the fares being currently charged for transit services. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_route_number
    + transit_route_segment_list
    + traveler_category
    + transit_route_use_time}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_TRANSIT_ROUTES{transit_route_number+transit_route_segment_list
    +traveler_category+transit_route_use_time};

transit_fare_direct_request

This data flow contains a request for the current prices being charged for transit fares. .

Additional Sizing Assumptions:
SIZE=1;

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 transit fares. .

Additional Sizing Assumptions:
SIZE=1;

transit_fare_transaction_records

This data store is used by processes in the Provide Electronic Payment Services function and contains records of transit fare payment transactions. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{advanced_fare_transactions
    + current_fare_transactions}.

Additional Sizing Assumptions:
SIZE=list_size+4000000{advanced_fare_transactions+current_fare_transactions};

transit_fare_transactions

This data flow is used by processes in the Manage Transit function and contains records of transit fare payment transactions. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{advanced_fare_transactions
    + current_fare_transactions}.

Additional Sizing Assumptions:
SIZE=list_size+4000000{advanced_fare_transactions+current_fare_transactions};

transit_fares

This data item is used within the Manage Transit function. It contains the current fare for each segment of a transit route in the network. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_route_segment_list
+ traveler_category
+ transit_route_use_time.

Additional Sizing Assumptions:
None

transit_fares_for_advanced_payments

This data store is used within the Provide Electronic Payments Services function and contains details of the current regular transit fares for use in calculating advanced fare payments. It consists of the following data item which is defined in its own DDE:

transit_fare_data.

Additional Sizing Assumptions:
None

transit_fares_for_roadside

This data store is used within the Manage Transit function and contains the current transit fares for use in fare processing on-board the transit vehicle. It consists of the following data item which is defined in its own DDE:

transit_fares.

Additional Sizing Assumptions:
None

transit_fares_for_vehicle

This data item is used within the Manage Transit function and contains the current transit fares for use in fare processing on-board the transit vehicle, obtained from the data store of transit fares. It consists of the following data item which is defined in its own DDE:

transit_fares.

Additional Sizing Assumptions:
None

transit_fares_for_vehicle_store

This data store is used within the Manage Transit function and contains the current transit fares for use in fare processing on-board the transit vehicle. It consists of the following data item which is defined in its own DDE:

transit_fares.

Additional Sizing Assumptions:
None

transit_fleet_operation_acknowledge

This data flow is used within the Manage Transit function and contains the acknowledgment of the request for the transit system operator to take specified actions in response to an incident .

Additional Sizing Assumptions:
SIZE=2;

transit_fleet_operation_request

This data flow is used within the Manage Transit function and contains a request for the transit system operator to take specified actions in response to an incident. .

Additional Sizing Assumptions:
SIZE=16;

transit_highway_overall_priority

This data flow contains requests and information about the overall priority which should be given to one or more transit vehicles at all points in the freeway network served by the function, as opposed to priority requests from individual vehicles at specific locations. This priority will apply at an individual junction, or along a selected transit route if that is specified. .

Additional Sizing Assumptions:
SIZE=TRANSIT_VEH_DEVS{HIGHWAY_MILES/MILES}{transit_vehicle_location+transit_route_number};

transit_highway_priority_given

This data flow is sent from the Manage Traffic function to the Manage Transit function. It contains confirmation that the requested priority has been given to transit vehicles throughout the freeway network served by the function. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

transit_incident_coordination_data

This data flow is sent from the Manage Emergency Services function to the Manage Transit function and contains information needed to deal with a transit related incident. It contains the following data items each of which is defined in its own DDE:

transit_coordination_information
+ transit_fleet_operation_request
+ transit_response_to_incident.

Additional Sizing Assumptions:
None

transit_incident_data

This data flow contains information about an incident that has occurred within part of the transit operations network, e.g. transit stop or mode interchange point. The location and details of the incident will be included in the information, subject to any constraints applied by the transit agency on providing information to outside sources. .

Additional Sizing Assumptions:
SIZE=10530;

transit_incident_details

This data flow is sent from the Manage Transit function to the Manage Emergency Services function and contains details of an incident in the transit operations network. It consists of the following data items each of which is defined in its own DDE:

incident_location
+ incident_start_time
+ incident_duration
+ incident_severity
+ transit_vehicle_off_route_indication.

Additional Sizing Assumptions:
None

transit_incident_extra_data

This data flow is used within the Manage Transit function and contains details from the transit system operator of any additional data relevant to a transit incident. .

Additional Sizing Assumptions:
SIZE=256;

transit_incident_info_for_archive

This data flow is used within the Manage Transit function and contains information about an incident in the transit operations network to be stored for later use. It consists of the following data items each of which is defined in its own DDE:

disaster_response_plan_coordination_to_transit
+ emergency_data_for_transit
+ evacuation_plan_coordination_to_transit
+ infrastructure_integrity_status_for_transit
+ threat_info_for_transit
+ transit_incident_details
+ transit_media_incident_interface_parameters
+ transit_operator_security_action
+ transit_preplanned_responses_for_archive.

Additional Sizing Assumptions:
None

transit_incident_information

This data flow is used within the Manage Transit function and contains information about an incident in the transit operations network. It consists of the following data items each of which is defined in its own DDE:

incident_location
+ incident_start_time
+ incident_duration
+ incident_severity
+ transit_vehicle_off_route_indication.

Additional Sizing Assumptions:
None

transit_incident_location

This data flow is used within the Manage Transit function and contains the location of an incident that has occurred in the transit operations network. The location will be something other than a transit vehicle and so will be at a fixed point. The data flow consists of the following data item which is defined in its own DDE:

location_identity.

Additional Sizing Assumptions:
None

transit_incident_required_action

This data flow is used within the Manage Transit function and contains details of the action(s) required concerning the security problem previously identified to the transit system operator. The action(s) is(are) to be taken by the receiving process. .

Additional Sizing Assumptions:
SIZE=256;

transit_info_for_emergency_services

This data flow contains a set of information provided by the Operate Transit Vehicles and Facilities function for the Provide Emergency Service Allocation function. The data flow consists of the following data items which are defined in their own DDE:

response_for_emergency_transit_support
+ transit_vehicle_operator_authentication
+ transit_vehicle_operator_authentication_database_update
+ secure_transit_vehicle_location
+ secure_sensors_transit_vehicle_location
+ secure_surveillance_transit_vehicle_location.

Additional Sizing Assumptions:
None

transit_information_request

This data flow is used within the Manage Transit function and requests details of the current state of transit vehicle operations. .

Additional Sizing Assumptions:
SIZE=2;

transit_inputs

This data flow is sent from the Manage Transit function to the Manage Traffic function and contains information about the operation of transit vehicles, requests for priority at signalized intersections and the response to requests for changes in transit services that have been made to help redistribute traveler demand. It consists of the following data items each of which is defined in its own DDE:

transit_roadway_overall_priority
+ transit_vehicle_roadway_priorities
+ transit_ramp_overall_priority
+ transit_services_for_demand
+ transit_services_changes_response
+ transit_running_data_for_demand
+ transit_probe_data
+ parking_lot_static_information_request_by_transit
+ parking_lot_dynamic_information_request_by_transit.

Additional Sizing Assumptions:
None

transit_journey_date

This data flow is used within the Provide Electronic Payment Services and Manage Transit functions. It gives the date and time at which a transit journey is to be made by a traveler (including a user of the transit system) and is used for trip planning purposes only. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time.

Additional Sizing Assumptions:
None

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 transit vehicles for use by processes within the schedule transit vehicle maintenance facility. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_maintenance_info
+ transit_technician_info.

Additional Sizing Assumptions:
None

transit_media_emergency_interface_parameters

This data flow is used within the Manage Transit function and contains parameters used to define the content and form of data that is automatically output to the media following an emergency in the transit operations network. It covers incidents to both travelers and vehicles and is principally concerned with emergencies that have taken place on-board transit vehicles. The data in the flow is set up by the transit system operator and enables some control to be exercised of the information being output, e.g. the suppression of some details where such things as acts of terrorism may be involved. .

Additional Sizing Assumptions:
SIZE=256;

transit_media_incident_interface_parameters

This data flow is used within the Manage Transit function and contains parameters used to define the content and form of data that is automatically output to the media following an incident in any part of the transit facilities. It covers incidents to travelers, and may have taken place at a transit stop or in some other transit operating facility. The data in the flow is set up by the transit system operator and enables some control to be exercised of the information being output, e.g. the suppression of some details where such things as acts of terrorism may be involved. .

Additional Sizing Assumptions:
SIZE=256;

transit_media_interface_parameters

This data flow is used within the Manage Transit function and contains parameters used to define the content and form of data that is automatically output to the media following an incident or emergency in the transit operations network. The data flow consists of the following data items each of which is defined in its own DDE:

transit_media_emergency_interface_parameters
+ transit_media_incident_interface_parameters.

Additional Sizing Assumptions:
None

transit_mode_routes

This store is used within the Provide Driver and Traveler Services function and is used to store details of all transit routes which are currently in use by travelers. .

Additional Sizing Assumptions:
SIZE=4096;

transit_operational_data

This data store is used within the Manage Transit function and contains operational data which can be used to generate transit routes and schedules. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{date + time
+ transit_roadside_operational_data
+ transit_vehicle_operational_data
+ transit_passenger_operational_data}.

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

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

Additional Sizing Assumptions:
None

transit_operational_data_for_archive

This data flow is used by processes within the Manage Transit function and contains data about operations of the fleet operated by the function. This data is stored for later use. The data flow consists of the following items each of which is defined in its own DDE:

transit_operational_data.

Additional Sizing Assumptions:
None

transit_operator_emergency_request

This data flow is used within the Manage Transit function and contains information about an incident that has been detected on-board a transit vehicle or at a transit facility following input from a traveler or transit vehicle operator. The data is for output to the transit system operator so that responsive action can be initiated. .

Additional Sizing Assumptions:
SIZE=128;

transit_operator_incident_information

This data flow is used within the Manage Transit function and contains information about an incident that has been automatically detected within the transit operations area. This incident may be a potential security problem, but it is up to the transit system operator to decide what responsive action can be initiated. The data flow consists of the following data items each of which is defined in its own DDE:

transit_incident_location
+ traveler_incident_input
+ infrastructure_integrity_status_for_transit
+ transit_vehicle_off_route_indication
+ wide_area_alert_notification_for_transit.

Additional Sizing Assumptions:
None

transit_operator_request_acknowledge

This data flow is used within the Manage Transit function and contains an acknowledgment that the previous notification of an emergency to the transit system operator has been received and is being considered for action. .

Additional Sizing Assumptions:
SIZE=2;

transit_operator_security_action

This data flow is used within the Manage Transit function and contains details of security action(s) that the transit system operator has requested having been presented with details of an incident within the transit operations network. The data flow consists of the following data items each of which is defined in its own DDE:

transit_incident_required_action
+ transit_incident_extra_data.

Additional Sizing Assumptions:
None

transit_passenger_capacities

This data flow is used within the Manage Transit function and provides the capacity of each transit vehicle as a number of passengers. .

Additional Sizing Assumptions:
SIZE=2;

transit_passenger_numbers

This data flow contains the number of passengers (travelers in the transit system) carried by a transit vehicle on each of its transit route segments. This data is measured by counting the numbers of passengers that pass the transit

fare collection point on a transit vehicle, and is determined independently of any passenger counting process. The size has been set to enable the number of passengers on a transit vehicle to reach its maximum, which may be possible with multi-carriage units of the type employed on some metro and mass-transit systems. .

Additional Sizing Assumptions:
SIZE=2;

transit_passenger_operational_data

This data flow contains information about the number of passengers (travelers in the transit system) who have used transit stops and vehicles being operated by the Manage Transit function. There are therefore two sets of data, one showing the numbers of passengers using each transit stop and the other showing the number of passengers on-board transit vehicles on each route segment. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{date + time
    + transit_roadside_operational_data
    + transit_route_operational_data}.

Additional Sizing Assumptions:
SIZE=list_size+TRANSIT_SAMPLE_RATE{date+time+transit_roadside_operational_data
+transit_route_operational_data};

transit_payment_data

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

advanced_tolls_and_charges_roadside_request
+ advanced_tolls_and_charges_vehicle_request
+ bad_tag_list_request
+ other_services_roadside_request
+ other_services_vehicle_request
+ request_roadside_fare_payment
+ request_vehicle_fare_payment
+ transit_services_for_advanced_fares
+ traveler_advanced_payment_at_roadside
+ traveler_roadside_image
+ traveler_vehicle_image.

Additional Sizing Assumptions:
None

transit_payment_results

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

advanced_tolls_and_charges_roadside_confirm
+ advanced_tolls_and_charges_vehicle_confirm
+ bad_tag_list_update
+ confirm_roadside_fare_payment
+ confirm_vehicle_fare_payment
+ other_services_roadside_response

+ other_services_vehicle_response
+ request_traveler_roadside_image
+ request_traveler_vehicle_image
+ transit_roadside_fare_data
+ transit_vehicle_fare_data
+ traveler_roadside_credit_identity_for_transit
+ traveler_roadside_tag_data
+ traveler_vehicle_tag_data.

Additional Sizing Assumptions:
None

transit_payment_transactions_for_archive

This data flow is sent from the Provide Electronic Payment Services function to the Manage Transit function and contains records of transit fare and traveler payment transactions. It consists of the following data items each of which is defined in its own DDE:

traveler_payments_transactions
+ transit_fare_transactions.

Additional Sizing Assumptions:
None

transit_plans

This data store is used within the Manage Transit function to hold data about both regular and paratransit services. This data is used as input to the regular transit schedule generation processes, as it provides details of the current services and the most popular paratransit services. The data store contains the following data items each of which is defined in its own DDE:

paratransit_service_stored_data
+ transit_routes
+ transit_schedules.

Additional Sizing Assumptions:
None

transit_preplanned_disaster_response_plan

This data flow contains the preplanned disaster response and recovery plan for transit management. These plans contain transit assets, schedules, etc. that have been planned to utilize prior to the occurrence of a disaster. The data flow consists of the following data items which are defined in their own DDE:

planned_disaster_response_transit_available_resources
+ planned_disaster_response_transit_schedule
+ planned_disaster_response_transit_routes
+ planned_disaster_response_transit_fares.

Additional Sizing Assumptions:
None

transit_preplanned_evacuation_plan

This data flow contains a description of the preplanned support of transit management for an evacuation. These plans contain transit assets, schedules, etc. that have been planned to support an evacuation. The data flow consists of the following data items which are defined in their own DDE:

planned_evacuation_transit_available_resources
+ planned_evacuation_transit_schedule
+ planned_evacuation_transit_routes
+ planned_evacuation_transit_fares.

Additional Sizing Assumptions:
None

transit_preplanned_incident_responses

This data flow is used within the Manage Transit function and contains the preplanned responses to certain types of transit incidents in response to the request for the store management process to output the contents of the data store that holds this data.

transit_preplanned_responses_for_incidents.

Additional Sizing Assumptions:
None

transit_preplanned_responses_for_archive

This data flow is used by processes within the Manage Transit function and is passed to the process that collects data for archiving. It contains the following items each of which is defined in its own DDE:

transit_preplanned_responses_for_incidents.

Additional Sizing Assumptions:
None

transit_preplanned_responses_for_incidents

This data store is generated and used by processes within the Manage Transit function and contains the following items each of which is defined in its own DDE:

transit_coordination_information
+ transit_response_to_incident.

Additional Sizing Assumptions:
None

transit_probe_data

This data flow contains the location of the transit vehicle on each part of its route, i.e., each transit route segment. This data will be used along with other probe data to calculate the link speed or travel time. Transit probe information can be provided by fixed route, flexibly routed, and 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_vehicle_time.

Additional Sizing Assumptions:
None

transit_ramp_overall_priority

This data flow is sent from the Manage Transit function to the Manage Traffic function. It contains requests and information on the overall priority which should be given to one or more transit vehicles over a wide area as opposed to priority requests from individual vehicles at a particular set of ramp signals. .

Additional Sizing Assumptions:
SIZE=16;

transit_ramp_priority_given

This data flow is sent from the Manage Transit function to the Manage Traffic function. It contains confirmation that the overall priority request for one or more transit vehicles over the ramp signals in a wide area as opposed to priority requests from individual vehicles at a particular set of ramp signals has been given. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

transit_requests

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Transit function and contains requests for information about transit services or a request for a paratransit service, plus vehicle location data and traveler tag data. It consists of the following data items each of which is defined in its own DDE:

paratransit_service_confirmation
+ paratransit_trip_request
+ request_transit_transfer_points
+ transit_advisory_vehicle_information
+ transit_conditions_advisories_request
+ transit_conditions_guidance_request
+ transit_deviation_kiosk_request
+ transit_deviations_personal_request
+ transit_deviations_511_request
+ transit_services_advisories_request
+ transit_services_for_distribution_kiosk_request
+ transit_services_for_distribution_personal_request
+ transit_services_guidance_request
+ transit_services_kiosk_request
+ transit_services_personal_request
+ transit_services_511_request
+ traveler_transit_profile
+ vehicle_location_for_transit.

Additional Sizing Assumptions:
None

transit_resources_available

This data flow contains a listing of the vehicles and operators that transit has available for use. The data flow consists of the following data items which are defined in their own DDE:

transit_vehicle_availability
+ transit_vehicle_operator_availability.

Additional Sizing Assumptions:

None

transit_response_to_incident

This data flow is used within the Manage Transit function and contains details of what transit action is required in response to an incident. It is used by processes within that function. .

Additional Sizing Assumptions:
SIZE=4096;

transit_road_overall_priority

This data flow contains requests and information about the overall priority which should be given to one or more transit vehicles at all junctions and/or pedestrian crossings in the road network served by the function, as opposed to priority requests for individual vehicles at specific locations. As this is a 'blanket' application of priority, no list of indicators is needed. .

Additional Sizing Assumptions:
SIZE=TRANSIT_VEH_DEVS{ROAD_MILES/MILES}{transit_vehicle_location+transit_route_number};

transit_road_priority_given

This data flow is sent from the Manage Traffic function to the Manage Transit function. It contains confirmation that the requested priority has been given to transit vehicles throughout the road network served by the function. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

transit_roadside_fare_collection_data

This data store contains details of the transit fare transactions that have been processed at a roadside location, i.e. a transit stop, as a result of travelers passing through the location to board transit vehicles. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_fare_collection_data}.

Additional Sizing Assumptions:
SIZE=list_size+TRANSIT_USERS_PER_STOP{transit_fare_collection_data};

transit_roadside_fare_collection_identity

This data flow contains the identity of each transit fare roadside collection point. This is usually a transit stop, although by using a separate identity definition the fare collection points can be in other places such as shopping malls, tourist attractions, travel agencies, etc. .

Additional Sizing Assumptions:
SIZE=5;

transit_roadside_fare_data

This data flow is sent by the Provide Electronic Payment Services function to the Manage Transit function and contains details of the fares being currently charged for regular transit services. It is for use in calculating fares that

are to be paid by travelers at the roadside, i.e. a transit stop, and consists of the following data item which is defined in its own DDE:

transit_fare_data.

Additional Sizing Assumptions:
None

transit_roadside_fare_payment_confirmation

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that the previous request for the cost of the current transit fare has been deducted successfully from the credit currently stored by the traveler's traveler card / payment instrument. The data flow is used when the traveler is paying for the transit fare at the roadside and consists of the following data item which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

transit_roadside_fare_payment_debited

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that the cost of the current transit fare will be deducted by the financial institution from the credit identity previously provided by the traveler card / payment instrument being used by the traveler on-board a transit vehicle. It is only sent when a credit identity has been previously received from the traveler card / payment instrument. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

transit_roadside_fare_payment_request

This data flow is used within the Provide Electronic Payment Services function and contains the request for the cost of the current transit fare to be deducted from the credit currently stored by the traveler's traveler card / payment instrument, when it is being used at the roadside, i.e. a transit stop. It is only sent when a value of stored credit has been previously received from the traveler card / payment instrument. The data flow consists of the following data item which is defined in its own DDE:

transit_fare.

Additional Sizing Assumptions:
None

transit_roadside_operational_data

This data flow is used within the Manage Transit function and contains operational data collected from the roadside, i.e. from transit stops. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_roadside_passenger_data}.

Additional Sizing Assumptions:
SIZE=list_size+TRANSIT_STOPS{transit_roadside_passenger_data};

transit_roadside_passenger_data

This data flow is used within the Manage Transit function. It contains the number of travelers (passengers) who, in a certain time period, have passed through a transit stop plus data about the ride which they purchased. The data is derived from roadside fare collection data and is for use in the determination of future transit services. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_stop_number
+ roadside_passenger_data_timeframe
+ transit_passenger_numbers
+ list_size
+ list_size{transit_fare_collection_data}.

Additional Sizing Assumptions:
SIZE=transit_route_stop_number+transit_passenger_numbers
+24{list_size+TRANSIT_STOPS{transit_fare_collection_data}};

transit_roadside_passenger_data_request

This data flow is used within the Manage Transit function to transfer requests for roadside passenger ride and fare information during a specific time period. It consists of the following data items each of which is defined in its own DDE:

transit_route_stop_number
+ roadside_passenger_data_timeframe.

Additional Sizing Assumptions:
SIZE=0.6{transit_route_stop_number} + 0.6{roadside_passenger_data_timeframe};

transit_roadway_overall_priority

This data flow is sent from the Manage Transit function to the Manage Traffic function. It contains requests and information on the overall priority which should be given to one or more transit vehicles throughout the road and freeway network served by the function and is different from priority requests from individual vehicles at particular locations. The data flow consists of the following data items each of which is defined in its own DDE:

transit_highway_overall_priority
+ transit_road_overall_priority.

Additional Sizing Assumptions:
None

transit_roadway_priority_given

This data flow is sent from the Manage Traffic function to the Manage Transit function. It contains confirmation that the overall priority requested for one or more transit vehicles throughout the road and freeway network served by the function has been given. The data flow consists of the following data items each of which is defined in its own DDE:

transit_highway_priority_given
+ transit_road_priority_given.

Additional Sizing Assumptions:
None

transit_route

This data flow is used within the Provide Driver and Traveler Services function and contains data for a special form of 'route' which only uses transit services. It consists the following data items each of which is defined in its own DDE:

route_cost
+ route_segment_number{route_segment_end_point
+ route_segment_estimated_travel_time
+ route_segment_report_position_points
+ route_segment_start_point}.

Additional Sizing Assumptions:
SIZE=route_cost+NUM_SEGS{route_segment_end_point+route_segment_estimated_travel_time
+route_segment_report_position_points+route_segment_start_point};

transit_route_assign_for_archive

This data flow is used within the Manage Transit function to store data that is used in the assignment of new routes to transit vehicle operators. The data is provided by other processes within the function. The flow consists of the following data items each of which is defined in its own DDE:

paratransit_services_for_transit_vehicle_operators
+ transit_services_for_transit_vehicle_operators
+ list_size
+ list_size{transit_vehicle_identity
+ transit_vehicle_availability}.

Additional Sizing Assumptions:
SIZE=paratransit_services_for_transit_vehicle_operators+transit_services_for_transit_vehicle_operators
+list_size+TRANSIT_VEHS{transit_vehicle_identity+transit_vehicle_availability};

transit_route_corrections

This data flow is used within the Manage Transit function and contains corrections to the current regular transit route. These corrections are intended to enable the transit vehicles on a particular route to return to their scheduled service for that route. .

Additional Sizing Assumptions:
SIZE=512;

transit_route_current_use

This data flow contains a count of the number of travelers who have selected a particular route as part of their on-line guidance or through trip planning requests. .

Additional Sizing Assumptions:
SIZE=2;

transit_route_destination

This data flow is used within the Manage Transit and Provide Electronic Payment Services functions. It contains the destination of a transit route to be used by a traveler (advanced fares). The destination will be defined as the name of a transit stop which should enable each destination to be uniquely identified allowing for the use of a common town or city name. .

Additional Sizing Assumptions:
SIZE=20;

transit_route_details

This store is used and maintained within the Provide Driver and Traveler Services function and contains the following data items each of which is defined in its own DDE:

transit_vehicle_passenger_loading
+ transit_passenger_capacities
+ transit_vehicle_running_times
+ transit_vehicle_schedule_deviations
+ transit_vehicle_eta
+ transit_route
+ transit_stop_locations
+ transit_schedules.

Additional Sizing Assumptions:
None

transit_route_fare_data

This data flow is used within the Manage Transit function. It contains details of the traveler fares for all the transit routes operated by the transit fleet from which the request was made. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_route_number
    + transit_route_segment_list}
+ map_transit_data.

Additional Sizing Assumptions:
SIZE=list_size+NUM_TRANSIT_ROUTES{transit_route_number+transit_route_segment_list}
+map_transit_data;

transit_route_number

This data flow is used within the Manage Transit function and contains the number of a regular transit route. This is stored so that the route number may be the same as that seen by travelers, e.g. 141A, or N177, etc. .

Additional Sizing Assumptions:
SIZE=4;

transit_route_operational_data

This data flow is used within the Manage Transit function and contains operational data about the number of passengers using each transit route. This data is the average value over short time periods, e.g. five (5) minutes, for a whole day and shows the number of passengers present on transit vehicles for each transit route segment. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_route_number + transit_vehicle_passenger_operational_data}.

Additional Sizing Assumptions:
SIZE=list_size
+NUM_TRANSIT_ROUTES{transit_route_number
+transit_vehicle_passenger_operational_data};

transit_route_origin

This data flow is used within the Manage Transit and Provide Electronic Payment Services functions. It contains the origin of a transit route to be used by a traveler (advanced fares). The origin will be defined as the name of a transit stop which should enable each destination to be uniquely identified allowing for the use of a common town or city name. .

Additional Sizing Assumptions:
SIZE=20;

transit_route_schedule_number

This data flow contains the number of the transit service that is operating on a particular route. .

Additional Sizing Assumptions:
SIZE=1;

transit_route_segment_cost

This data flow is used within the Manage Transit function and contains the cost of the use of a particular transit route segment. It can only be used in association with the segment number, the category of the traveler and the time at which the route is used. .

Additional Sizing Assumptions:
SIZE=2;

transit_route_segment_identity

This data flow is used within the Manage Transit function. It contains the identity of a transit route segment. The identity is in two parts, the route number on which the segment lies, and the number of the segment along the route. A transit route segment is defined as the link between two successive transit stops, either of which may also be points of interchange with other routes. It is possible for the segments on two or more routes to apply to the same physical link between two stops. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_route_segment_number.

Additional Sizing Assumptions:
None

transit_route_segment_list

This data flow is used within the Manage Transit function. It contains a list of the transit route segments that make up a particular transit route, plus the cost to a traveler for using each segment and the identity of the road or freeway link(s) over which the route segment runs. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{link_identity_list
    + transit_route_segment_number
    + transit_route_segment_cost}.

Additional Sizing Assumptions:
SIZE=list_size+TRANSIT_SEGS{link_identity_list+transit_route_segment_number
+transit_route_segment_cost};

transit_route_segment_number

This data flow contains the number of a transit route segment within the transit route on which it lies. .

Additional Sizing Assumptions:
SIZE=2;

transit_route_stop_data

This data flow is used within the Manage Transit function and contains data for each of the transit stops that make up a particular transit route. 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}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_TRANSIT_SERVICES{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 transit stops that make up a particular transit 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}.

Additional Sizing Assumptions:
SIZE=transit_route_stop_number+list_size
+NUM_TRANSIT_SERVICES{transit_route_schedule_number+transit_stop_scheduled_time};

transit_route_stop_number

This data flow contains the identity number of a transit stop on a transit route. The identity of the route number that goes with the stop is carried in an accompanying data flow. A shelter identifier is associated with the route stop number. The data flow consists of the following data item which is defined in its own DDE:

transit_shelter_id.

Additional Sizing Assumptions:
None

transit_route_use_time

This data flow is used within the Manage Transit function and contains the time at which the associated transit fare will apply, e.g. weekday morning peak, Sunday, public holiday, etc. .

Additional Sizing Assumptions:
SIZE=2;

transit_routes

This data flow is used within the Manage Transit function. It contains details of the routes being provided by the regular transit operation. The data flow consists of the following data items each of which is defined in its own DDE:

transit_routes_data.

Additional Sizing Assumptions:
None

transit_routes_current_data

This data flow is used within the Manage Transit function. It contains details of a previously generated transit vehicle route and the routes of the most popular demand responsive transit services. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{paratransit_destination
    + paratransit_pickup_location}
+ transit_passenger_capacities
+ transit_route
+ transit_stop_locations.

Additional Sizing Assumptions:
SIZE=list_size+100{paratransit_destination+paratransit_pickup_location}
  + transit_passenger_capacities+transit_route+transit_stop_locations;

transit_routes_data

This data flow is used within the Manage Transit function. It contains details of the routes being provided by the transit operation. The list of route segments contains the identity of each link in the road and freeway network associated with the segment to enable them to be output on top of a display of digitized map data. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_route_number
    + transit_route_segment_list
    + transit_route_stop_number}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_TRANSIT_ROUTES{transit_route_number+transit_route_segment_list
    +transit_route_stop_number};

transit_routes_request

This data flow is used within the Manage Transit function to request a copy of the current transit routes. .

Additional Sizing Assumptions:
SIZE=1;

transit_routes_updates

This data flow is used within the Manage Transit function and contains details of each transit vehicle route calculated at the request of the transit system operator using previously defined parameters and current transit operational data. It consists of the following data items each of which is defined in its own DDE:

transit_passenger_capacities

+ transit_route
+ transit_stop_locations.

Additional Sizing Assumptions:
None

transit_running_data_for_advisories

This data flow is used within the Provide Driver and Traveler Services function. It contains data on the current state of transit operations for use in driver and traveler (users of the transit system) 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}.

Additional Sizing Assumptions:
SIZE=transit_route_number+transit_vehicle_identity+list_size
  +LOCAL_DATA{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 Traveler Services function. It is used to provide data on the current state of transit operation for use in driver and traveler advisories and consists of the following items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_passenger_loading
    + transit_vehicle_running_times
    + transit_vehicle_schedule_deviations
    + transit_vehicle_eta}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_TRANSIT_ROUTES{transit_vehicle_passenger_loading
    +transit_vehicle_eta
    +transit_vehicle_running_times+transit_vehicle_schedule_deviations};

transit_running_data_for_broadcast

This data flow is used within the Provide Driver and Traveler Services function. It contains data on the current state of transit operations for use in driver and traveler (users of the transit system) 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_vehicle_time}.

Additional Sizing Assumptions:
SIZE=transit_route_number+transit_vehicle_identity+list_size
+BROADCAST_ITEMS{transit_route_segment_number+transit_stop_scheduled_time
+transit_vehicle_achieved_time+transit_vehicle_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 transit operation for use in demand forecasting calculations carried out by the Manage Demand facility and consists of the following items each of which is defined in its own DDE:

transit_vehicle_passenger_loading
+ transit_vehicle_deviation_update
+ transit_vehicle_running_times
+ transit_vehicle_schedule_deviations
+ transit_vehicle_eta
+ transit_vehicle_off_route_indication.

Additional Sizing Assumptions:
None

transit_running_data_for_guidance

This data flow is sent from the Manage Transit function to the Provide Driver and Traveler Services function. It is used to provide data on the current state of transit operation for use in preparing driver and traveler 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.

Additional Sizing Assumptions:
None

transit_schedule_current_data

This data flow is used within the Manage Transit function. It contains details of a previously generated schedule of services on each regular transit vehicle route, plus the timings for the most popular demand responsive transit services. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{paratransit_arrival_time
+ paratransit_destination
+ paratransit_pickup_time
+ paratransit_pickup_location}
+ transit_schedule_data.

Additional Sizing Assumptions:
SIZE=list_size+100{paratransit_pickup_location+paratransit_pickup_time
+paratransit_arrival_time+paratransit_destination}+transit_schedule_data;

transit_schedule_data

This data flow is used within the Manage Transit function and contains the schedule of services on each transit vehicle route and the cost to the traveler 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}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_TRANSIT_ROUTES{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 transit schedules. This data flow may include a short description of when (day and/or period) the schedule is expected to apply. .

Additional Sizing Assumptions:
SIZE=16;

transit_schedule_information_during_emergencies

This data flow contains information on transit service or schedule changes that have been put into effect in response to disaster or other emergencies. The data flow consists of the following data items which are defined in their own DDE:

transit_schedule_data.

Additional Sizing Assumptions:
None

transit_schedule_information_during_evacuation

This data flow contains information on transit service or schedule changes that have been put into effect in response to evacuations. The data flow consists of the following data items which are defined in their own DDE:

transit_schedule_data.

Additional Sizing Assumptions:
None

transit_schedule_request

This data flow is used within the Manage Transit function to request a copy of the current schedules of transit services on the transit routes. .

Additional Sizing Assumptions:
SIZE=1;

transit_schedule_updates

This data flow is used within the Manage Transit function. It contains the schedule of services on a transit vehicle route calculated at the request of the transit system operator using previously defined parameters and current transit operational data. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_route_segment_list
+ transit_route_stop_list
+ transit_schedule_identity.

Additional Sizing Assumptions:
None

transit_schedules

This data flow is used within the Manage Transit function. It contains the schedule of the timings of services on each regular transit route. The data flow consists of the following data item which is defined in its own DDE:

transit_schedule_data.

Additional Sizing Assumptions:
None

transit_security_info_for_archive

This data flow is used within the Manage Transit function and contains information about an incident in the transit operations network. It consists of the following data items each of which is defined in its own DDE:

transit_incident_info_for_archive
+ transit_emergency_data_for_archive.

Additional Sizing Assumptions:
None

transit_service_external_data

This data flow is used within the Manage Transit function. It contains transit services (routes, schedules and transfer points) in their raw form for distribution to and use by processes in other ITS functions. The map data of transit routes is included to enable output of displays showing transit routes by processes that do not have access to a digitized map database. Those that do can use the link identity in the transit routes data to map out the transit route. The data flow consists of the following items of data both of which are defined in their own DDE's:

transit_routes_data
+ transit_schedule_data
+ transit_transfer_cluster_list
+ trmc_list
+ map_transit_data.

Additional Sizing Assumptions:
None

transit_service_internal_data

This data flow is used within the Manage Transit function and contains data about the current transit services (routes and schedules) in their raw form. It is used for distribution to and use by other processes within the local function. The map data is included to enable the transit route(s) and any data provided with them by a local process

to be output as a map type display. The data flow consists of the following items of data both of which are defined in their own DDE's:

transit_routes_data
+ transit_schedule_data
+ map_transit_data.

Additional Sizing Assumptions:
None

transit_service_planning_parameters

This data store is used within the Manage Transit function and contains parameters collected from actual transit operations that are used to generate transit routes and schedules. .

Additional Sizing Assumptions:
SIZE=1024000;

transit_service_raw_data

This data store is used within the Manage Transit function and contains the raw output from the transit service generation processes, i.e. raw routes, schedules and transfer points. The term raw indicates that the data is not in a form that would be readily understandable by transit system operators and travelers, without some subsequent processing. It is therefore intended for use by other processes and consists of the following data items each of which is defined in its own DDE:

transit_routes_data
+ transit_schedule_data
+ transit_transfer_cluster_list.

Additional Sizing Assumptions:
None

transit_service_regional_request

This data flow is a request for details of transit services for travelers. .

Additional Sizing Assumptions:
SIZE=1;

transit_service_status

This data flow is sent from the transit vehicle operator to the Manage Transit function. It provides input from the transit vehicle operator to the Transit Management Operations Center concerning transit schedules, passenger loading, and other service status. .

Additional Sizing Assumptions:
SIZE=2048;

transit_services

This data flow is sent by the Manage Transit function to other ITS functions. It contains a complete set of all the transit routes and the services that run upon them, including timings, etc. that are currently being provided by the transit fleet. This data is a processed version of the raw data to enable it to be easily understood by the recipients such as drivers and travelers. The data 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.

Additional Sizing Assumptions:
None

transit_services_511_request

This data flow is a request for supply of details of transit services for output to a 511 traveler information system. The 511 system will provide the region so that the receiving process can work out for which transit route(s) data will be provided. The data flow consists of the following data items each of which is defined in its own DDE:

transit_service_regional_request
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
None

transit_services_advisories_request

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Transit function. It is a request for supply of details of the services currently being provided by the transit fleet and will be used in the preparation of on-line driver and traveler advisory data for output to vehicles. .

Additional Sizing Assumptions:
SIZE=32;

transit_services_changes_request

This data flow is sent by the Manage Traffic function to the Manage Transit function and is a request to change the current transit services in response to changes in demand, or a desire to change the modal split currently being used by travelers. .

Additional Sizing Assumptions:
SIZE=1024;

transit_services_changes_response

This data flow is sent by the Manage Transit function to the Manage Traffic function and is the response to the previous request for changes in the transit services. .

Additional Sizing Assumptions:
SIZE=2;

transit_services_data_for_output

This data flow is used within the Manage Transit function and contains data about the current transit services (routes and schedules) in their raw form. It is used to produce output for the transit system operator when requested. The data flow consists of the following items of data each of which is defined in its own DDE:

transit_routes_data
+ transit_schedule_data
+ trmc_list.

Additional Sizing Assumptions:

None

transit_services_demand_request

This data flow is sent from the Manage Traffic function to the Manage Transit function. It is a request for supply of details of the transit services and will be used in the preparation of demand forecasts by the Manage Demand facility. The data flow consists of the following data items each of which is defined in its own DDE:

tmc_identity
+ transit_services_request.

Additional Sizing Assumptions:
None

transit_services_demand_response_request

This data flow is used within the Manage Transit function. It is sent from the Demand Responsive Transit facility to request details of the regular transit services being currently provided by the transit fleet. It consists of the following data item which is defined in its own DDE:

transit_services_request.

Additional Sizing Assumptions:
None

transit_services_for_511

This data flow contains details of the current transit services for output to a 511 traveler information system and consists of the following data items each of which is defined in its own DDE:

transit_services_for_output
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
SIZE=2{transit_services_for_output};

transit_services_for_advanced_fares

This data flow is sent from the Manage Transit function to the Provide Electronic Payment Services function. It contains details of the traveler fares for all the transit routes operated by the transit fleet from which the request was made. This data is for use in processing advanced transit fare payments initiated by drivers at toll plazas or parking lots. The data flow consists of the following data item which is defined in its own DDE:

transit_route_fare_data.

Additional Sizing Assumptions:
None

transit_services_for_advisories

This data flow is used within the Provide Driver and Traveler Services function to provide details of transit services that are relevant to a driver or traveler who is requesting advisory information from a vehicle. .

Additional Sizing Assumptions:
SIZE=64;

transit_services_for_advisory_data

This data flow is sent from the Manage Transit function to the Provide Driver and Traveler Services function. It contains a complete set of all the transit routes and the services that run upon them, including timings, etc., that are provided by the transit fleet from which the data was requested, for use in the preparation of driver and traveler advisory information for output on-board vehicles. It consists of the following data items each of which is defined in its own DDE:

transit_services
+ trmc_list.

Additional Sizing Assumptions:
None

transit_services_for_broadcast

This data flow is used within the Provide Driver and Traveler Services function to provide details of transit services to a driver or traveler 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. .

Additional Sizing Assumptions:
SIZE=48;

transit_services_for_corrections

This data flow is used within the Manage Transit function. It is sent to the Operate Transit Vehicles facility for use in the calculation of corrections to transit vehicle routes and schedules to restore a service to normal operation. It contains a complete set of all the transit routes and the services that run upon them, including timings, etc. that are provided by the transit fleet from which the data was requested.

list_size
+ list_size{transit_services}.

Additional Sizing Assumptions:
SIZE=list_size+1{2/NUM_TRANSIT_ROUTES}{transit_services};

transit_services_for_demand

This data flow is sent from the Manage Transit function to the Manage Traffic function. It contains a complete set of all the transit routes and the services that run upon them, including timings, etc., that are provided by the transit fleet from which the data was requested, for use in the calculation of demand forecasts by the Manage Demand facility. The data flow consists of the following data items each of which is defined in its own DDE:

transit_services
+ trmc_list.

Additional Sizing Assumptions:
None

transit_services_for_demand_response

This data flow is used within the Manage Transit function. It contains details of the services being currently provided by the regular transit fleet and consists of the following data item which is defined in its own DDE:

transit_services.

Additional Sizing Assumptions:
None

transit_services_for_deployment

This data flow contains details of the current transit services for use in the analysis of ITS operating performance and consists of the following data item which is defined in its own DDE:

transit_services.

Additional Sizing Assumptions:
None

transit_services_for_distribution_kiosk_request

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Transit function. It is a request for supply of details of the services currently being provided by the transit fleet and will be used in the preparation of on-line traveler advisory data for output to travelers at a kiosk. The traveler will have to provide the origin and destination so that the receiving process can work out for which transit route(s) data will have to be provided. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_services_request
+ destination
+ kiosk_identity
+ origin.

Additional Sizing Assumptions:
None

transit_services_for_distribution_personal_request

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Transit function. It is a request for supply of details of the services currently being provided by the transit fleet for output to a traveler's personal device. The traveler will have to provide the origin and destination so that the receiving process can work out for which transit route(s) data will have to be provided. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_services_request
+ destination
+ traveler_identity
+ origin.

Additional Sizing Assumptions:
None

transit_services_for_distribution_to_kiosks

This data flow is sent from the Manage Transit function to the Provide Driver and Traveler Services function. It contains details of the transit services that satisfy a traveler's request. This data is output to a kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

kiosk_identity
+ transit_services_for_output
+ transit_services.

Additional Sizing Assumptions:
SIZE=kiosk_identity+2{transit_services_for_output};

transit_services_for_distribution_to_personal_devices

This data flow contains details of the current transit services for output to a traveler's personal device. It contains a complete set of all the transit routes and the services that run upon them, including timings, etc. that are provided by the transit fleet from which the data was requested. The data flow consists of the following data items each of which is defined in its own DDE:

transit_services_for_output
+ transit_services.

Additional Sizing Assumptions:
None

transit_services_for_eta

This data flow is used within the Manage Transit function. It is sent to the Operate Transit Vehicles facility for use in the calculation of transit vehicle estimated times of arrival (eta) at transit stops. It only contains details of the schedule for the transit route that is currently being operated by the vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_route_segment_list
+ transit_route_stop_list.

Additional Sizing Assumptions:
None

transit_services_for_eta_request

This data flow is used within the Manage Transit function to request the details of the current transit service so that a transit vehicle can calculate its current deviation relative to that schedule. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_route_number
+ transit_route_schedule_number.

Additional Sizing Assumptions:
None

transit_services_for_guidance

This data flow is sent from the Manage Transit function to the Provide Driver and Traveler Services function. It contains a complete set of all the transit routes and the services that run upon them, including timings, etc. that are provided by the transit fleet from which the data was requested, for use in the preparation of data for output as on-line driver and traveler guidance data. The data flow consists of the following data items each of which is defined in its own DDE:

transit_services_for_output
+ traveler_identity.

Additional Sizing Assumptions:
None

transit_services_for_isp

This data flow is used within the Manage Transit function and contains a complete set of all the transit routes and the services that run upon them, including timings for use in the distribution to travelers. It consists of the following data item which is defined in its own DDE:

transit_services.

Additional Sizing Assumptions:
None

transit_services_for_kiosks

This data flow is sent from the Manage Transit function to the Provide Driver and Traveler Services function. It contains details of the transit services that satisfy a traveler'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
+ transit_services_for_output.

Additional Sizing Assumptions:
SIZE=kiosk_identity+2{transit_services_for_output};

transit_services_for_other_transit_management

This data flow is used within the Manage Transit function and contains details of the local transit services (routes, schedules and transfer points) for use by other adjacent transit centers so that coordination of services can be achieved for the benefit of travelers. It consists of the following items of data each of which is defined in its own DDE:

transit_routes_data
+ transit_schedule_data
+ transit_transfer_cluster_list
+ trmc_list.

Additional Sizing Assumptions:
None

transit_services_for_output

This data flow is used within the Manage Transit function and contains details of the transit route(s) that fulfill the origin-destination requirements of a particular traveler's request. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ list_size
+ list_size{transit_route_segment_number
    + transit_route_segment_cost
    + transit_stop_scheduled_time}.

Additional Sizing Assumptions:
SIZE=transit_route_number+list_size+TRANSIT_SEGS{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 transit services for output to a traveler's personal device and consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ transit_services_for_output.

Additional Sizing Assumptions:
SIZE=traveler_identity+2{transit_services_for_output};

transit_services_for_roadside_fares

This data flow is used within the Manage Transit function. It contains details of the traveler fares for all the transit routes operated by the transit fleet from which the request was made. This data is for use in processing transit fare payments initiated by travelers at the roadside (a transit stop). The data flow consists of the following data item which is defined in its own DDE:

transit_route_fare_data.

Additional Sizing Assumptions:
None

transit_services_for_scenarios

This data flow is used within the Manage Transit function. It is sent to the Operate Transit Vehicles facility for use in the calculation of the scenarios for the return of transit vehicles to their published schedules and routes. It contains a complete set of all the transit routes and the services that run upon them, including timings, etc. that are provided by the transit fleet from which the data was requested.

list_size
+ list_size{transit_services}
+ map_transit_data.

Additional Sizing Assumptions:
SIZE=list_size+1{4/NUM_TRANSIT_ROUTES}{transit_services};

transit_services_for_transit_vehicle_operators

This data flow is used within the Manage Transit function. It is sent to the Generate Transit Vehicle Operator Schedules facility and contains a complete set of all the transit routes and the services that run upon them, including timings, etc. that are provided by the transit fleet from which the data was requested.

list_size
+ list_size{transit_services}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_TRANSIT_ROUTES{transit_services};

transit_services_for_travelers

This data flow is used within the Manage Transit function. It is sent to the Provide Traveler Transit Interface facility and contains a complete set of all the transit routes and the services that run upon them, including timings, etc. that are provided by the transit fleet from which the data was requested. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ transit_services_for_output.

Additional Sizing Assumptions:
SIZE=traveler_identity+2{transit_services_for_output};

transit_services_for_vehicle_fares

This data flow is used within the Manage Transit function. It contains details of the traveler fares for all the transit routes operated by the transit fleet from which the request was made. This data is for use in processing transit fare payments initiated by travelers on-board a transit vehicle. The data flow consists of the following data item which is defined in its own DDE:

transit_route_fare_data.

Additional Sizing Assumptions:
None

transit_services_guidance_request

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Transit function. It is a request for supply of details of the services being currently provided by the transit fleet and will be used in the preparation of on-line traveler guidance data. The process(es) that are providing the interface through which the traveler is obtaining the on-line guidance will have to provide the origin and destination so that the receiving process in the Manage Transit function can work out for which transit route(s) data will be provided. The data flow consists of the following data items each of which is defined in its own DDE:

destination
+ origin
+ traveler_identity.

Additional Sizing Assumptions:
None

transit_services_kiosk_request

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Transit function. It is a request for details of transit services for output to a kiosk. The traveler will have to provide the origin and destination so that the receiving process can work out for which transit route(s) data will 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.

Additional Sizing Assumptions:
None

transit_services_personal_request

This data flow is a request for supply of details of transit services for output to a traveler's personal device. The traveler will have to provide the origin and destination so that the receiving process can work out for which transit route(s) data will be provided. The data flow consists of the following data items each of which is defined in its own DDE:

destination
+ origin
+ traveler_identity.

Additional Sizing Assumptions:
None

transit_services_request

This data flow contains a request for details of the regular transit services being currently provided by the transit fleet. The size of this flow enables an identity to be set for each actual service for which data is required. .

Additional Sizing Assumptions:
SIZE=64;

transit_services_roadside_data

This data store is used within the Manage Transit function and contains all the data that has been output to the traveler at a transit stop. The data is held local to the stop and is used as a source of data if communications with the transit management center, or local transit vehicle is not available. The data is replaced when new updates are obtained, or in the case of transit vehicles when the vehicle leaves the transit stop. This data store consists of the following items of data, each of which is defined in its own DDE:

transit_services_for_travelers
+ transit_vehicle_arrival_time
+ transit_vehicle_user_data.

Additional Sizing Assumptions:
None

transit_services_travelers_request

This data flow is used within the Manage Transit function to request the details of the current transit services for a traveler at the roadside. The traveler will have to provide the origin and destination so that the receiving process can work out for which transit route(s) data will be provided. The data flow consists of the following data items each of which is defined in its own DDE:

destination
+ origin
+ traveler_identity.

Additional Sizing Assumptions:
None

transit_shelter_id

This data flow is used within the Manage Transit function and contains the identity of an individual transit shelter at a transit stop. This data is used by processes within the function to identify the source and/or ownership of other data. .

Additional Sizing Assumptions:
SIZE=4;

transit_status_for_disaster

This data flow contains information about the public transportation network that may be used during disaster response and recovery operations. This could include high-level information concerning the status of the entire transit system or details concerning changes to routes and schedules pertinent to the disaster situation including damage that has been sustained. .

Additional Sizing Assumptions:
SIZE=1024;

transit_status_for_evacuation

This data flow contains information about the public transportation network that may be used during evacuations. This could include high-level information concerning the status of the entire transit system or details concerning changes to routes and schedules pertinent to the evacuation situation including damage that has been sustained. .

Additional Sizing Assumptions:
SIZE=1024;

transit_stop_locations

The data flow is used within the Manage Transit function and provides the location of stops on transit routes. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_route_stop_number
    + transit_route_number
    + location_identity}.

Additional Sizing Assumptions:
SIZE=list_size+TRANSIT_STOPS{transit_route_stop_number+transit_route_number
    +location_identity};

transit_stop_scheduled_time

This data flow is used within the Manage Transit function and contains the time at which a transit vehicle is scheduled to reach each stop on a transit route. This will thus be the scheduled time of arrival at the end of a transit route segment. The identity of the transit route segment to which this data applies is carried in an accompanying data flow. The data flow consists of the following data item which is defined in its own DDE:

time.

Additional Sizing Assumptions:
None

transit_system_status

This data flow is sent from the Manage Transit to Emergency Management functions and contains information about the public transportation network that may be used by the Disaster and Evacuation function. This data could include information about transit incidents at stops or stations, or about transit emergencies on-board the transit vehicle. It consists of the following data items each of which is defined in its own DDE:

emergency_data_for_transit
+ evacuation_status_report
+ transit_preplanned_evacuation_plan
+ secure_transit_vehicle_alarm_request_for_transit
+ faas-alerts_and_advisories_for_transit
+ threat_information_for_dissemination
+ infrastructure_integrity_status_for_transit
+ transit_incident_details
+ transit_preplanned_responses_for_incidents
+ transit_evacuation_plan
+ transit_vehicle_disable_from_operator
+ disaster_response_plan_coordination_to_transit
+ transit_operator_security_action.

Additional Sizing Assumptions:
None

transit_technician_data

This data store is used within the Manage Transit function and contains data about all the transit technicians available to carry out maintenance work on the vehicles in a transit fleet. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_technician_detail}.

Additional Sizing Assumptions:
SIZE=list_size+TRANSIT_TECHS{transit_technician_detail};

transit_technician_detail

This data flow is used within the Manage Transit function and contains data about transit technicians. It consists of the following data items each of which is defined in its own DDE:

transit_technician_identity
+ transit_technician_seniority
+ transit_technician_work_assignment
+ transit_technician_work_hours
+ transit_technician_work_log
+ transit_technician_work_preferences
+ transit_technician_work_skills.

Additional Sizing Assumptions:
None

transit_technician_identity

This data flow is used within the Manage Transit function and contains the identity of an individual transit technician. It is used to identify other data about the technician, which will be found in associated data flows. .

Additional Sizing Assumptions:
SIZE=16;

transit_technician_info

This data flow is used within the Manage Transit function and contains data about all the transit technicians available to carry out maintenance work on the vehicles in a transit fleet. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_technician_detail}.

Additional Sizing Assumptions:
SIZE=list_size+TRANSIT_TECHS{transit_technician_detail};

transit_technician_seniority

This data flow contains the seniority of an individual transit technician. .

Additional Sizing Assumptions:
SIZE=1;

transit_technician_work_assignment

This data flow is used within the Manage Transit function and contains information on the work assignment that has been given to the transit technician to carry out. It will involve some transit vehicle maintenance work. The data flow consists of the following data items each of which is defined in its own DDE:

transit_technician_identity
+ transit_vehicle_identity
+ transit_vehicle_maintenance_work.

Additional Sizing Assumptions:
None

transit_technician_work_hours

This data flow contains the number of hours per week, per month and per year that an individual transit technician is able to work. The identity of the technician is contained in a separate data flow. .

Additional Sizing Assumptions:
SIZE=3;

transit_technician_work_log

This data flow is used within the Manage Transit function and contains the log of maintenance work carried out by an individual transit technician. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{date
    + time
    + transit_vehicle_identity
    + transit_vehicle_maintenance_work}.

Additional Sizing Assumptions:
SIZE=list_size+TRANSIT_TECH_ACTS{date+time+transit_vehicle_identity
+transit_vehicle_maintenance_work};

transit_technician_work_preferences

This data flow contains the work preferences of an individual transit technician. They are defined as a series of character codes, which include but are not limited to day time working only, night time working only, weekday working only, i.e. no weekend working, limited day time hours, no working constraints, i.e. can work any hours on any days, limited night time hours, can work outside of the maintenance facility, e.g. on the road. .

Additional Sizing Assumptions:
SIZE=24;

transit_technician_work_skills

This data flow contains the skills that are possessed by an individual transit technician. These skills are defined as character codes and may describe but not be limited to general maintenance technician (no specialties), vehicle engine specialist, vehicle transmission specialist, vehicle running gear specialist, vehicle body work specialist, has a transit vehicle driving license. .

Additional Sizing Assumptions:
SIZE=3;

transit_to_m_and_c

This DFD flow represents the data flows from Manage Transit to Manage Maintenance and Construction. The DFD flow consists of the following data flows each of which is defined in its own DDE:

m_and_c_plan_feedback_from_transit
+ env_probe_info_from_transit.

Additional Sizing Assumptions:
None

transit_transfer_cluster

This data flow is used within the Manage Transit function and represents each transfer cluster. A transfer cluster is a collection of stop points in the same vicinity where transfers between [transit] routes can be made conveniently. This may include transfers between bus routes (in the same or different transit agencies), between bus routes and light or commuter rail lines (including BRT [Bus Rapid Transit]), or between light and/or heavy rail passenger lines. A transit station generally has many subway lines. This data flow consists of the following data items each of which is defined in its own DDE:

transit_stop_locations
+ trmc_identity.

Additional Sizing Assumptions:
None

transit_transfer_cluster_list

This data flow is used within the Manage Transit function and contains a list of transit transfer clusters. A transfer cluster is a collection of stop points in the same vicinity where transfers between [transit] routes can be made conveniently. This data flow contains the following data items which are defined in their own DDE:

list_size
+ list_size{transit_transfer_cluster}.

Additional Sizing Assumptions:
None

transit_transfer_point

This data flow is used within the Manage Transit function and represents each transfer point. A transfer point is a stop on a bus or rail line where a traveler can transfer between routes [and possibly transportation modes]. This data flow consists of the following data items each of which is defined in its own DDE:

transit_stop_locations
+ trmc_identity.

Additional Sizing Assumptions:
None

transit_transfer_point_list

This data flow is used within the Manage Transit function and contains a list of transit transfer points. A transfer point is a stop on a bus or rail line where a traveler can transfer between routes [and possibly transportation modes]. This data flow contains the following data items which are defined in their own DDE:

list_size
+ list_size{transit_transfer_point}.

Additional Sizing Assumptions:
None

transit_traveler_wide_area_alert_info

This data flow is used to provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction information to be displayed on the transit vehicle. The data flow consists of the following data item which is defined in its own DDE:

wide_area_alert_notification_for_transit.

Additional Sizing Assumptions:
None

transit_updates

This data flow is sent from the Manage Traffic function to the Manage Transit function and contains traffic data for use in transit operations, requests for information on transit services, or requests for changes to transit services to try and re-distribute traveler demand. It consists of the following data items each of which is defined in its own DDE:

prediction_data
+ planned_events
+ transit_conditions_demand_request
+ transit_ramp_priority_given
+ transit_roadway_priority_given
+ transit_services_demand_request
+ transit_services_changes_request
+ traffic_data_for_transit
+ routing_information_for_transit
+ roadway_detours_and_closures_for_transit
+ static_parking_information_for_transit
+ dynamic_parking_information_for_transit.

Additional Sizing Assumptions:
None

transit_vehicle_achieved_time

This data flow is used within the Manage Transit function and contains the time at which a transit vehicle actually reached the end of a transit route segment. This point is usually a transit stop and the data is thus the arrival time of a transit vehicle at each of the transit stop(s) along the transit route. The identity of the transit route segment to which this data applies is carried in an accompanying data flow. The data flow consists of the following data item which is defined in its own DDE:

time.

Additional Sizing Assumptions:
None

transit_vehicle_advanced_payment_request

This data flow is used within the Manage Transit function and contains data about advanced fares and tolls requested by travelers (users of the transit system) from on-board transit vehicles. It consists of the following data items each of which is defined in its own DDE:

advanced_charges
+ advanced_tolls
+ transit_vehicle_location.

Additional Sizing Assumptions:
None

transit_vehicle_advanced_payment_response

This data flow is used within the Manage Transit function and contains the result of the requested advanced payment transaction from a traveler (user of the transit system) in a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

advanced_charges_confirm
+ advanced_tolls_confirm
+ confirmation_flag
+ transit_vehicle_identity.

Additional Sizing Assumptions:
None

transit_vehicle_advisory_eta

This data flow is used as an interface between the Manage Transit and Provide Driver and Traveler Information functions. It contains the estimated time of arrival of a transit vehicle at the end of a transit route segment, which is usually a stop, plus the route and service number on which it is operating. It is used for individual transit vehicle deviations and contains the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_vehicle_time
+ transit_route_number.

Additional Sizing Assumptions:
None

transit_vehicle_arrival_conditions

This data flow is used within the Manage Transit function and contains the deviations from the published data of a transit service. This data is for output to the multimodal transportation service providers so that adjustments can be made to their services to enable travelers to make their connections at modal interchange points. .

Additional Sizing Assumptions:
SIZE=128;

transit_vehicle_arrival_deviations

This data flow is used within the Manage Transit function and contains the deviation from the published service of a transit vehicle. This data is for output to the multimodal transportation service providers so that their services may be adjusted to enable travelers on the vehicle to make their connections at modal interchange points. .

Additional Sizing Assumptions:
SIZE=512;

transit_vehicle_arrival_time

This data flow is used within the Manage Transit function. It contains the estimated time of arrival of a transit vehicle at a stop plus the route and service number on which it is operating. .

Additional Sizing Assumptions:
SIZE=6;

transit_vehicle_arrival_times

This data flow is used within the Manage Transit function. It contains the time at which it is expected that a transit vehicle will reach the end of transit_route segments on its route and is used to determine any schedule deviations. The end of a transit route segment is usually a transit stop and the data is thus the expected arrival time of a transit vehicle at each of the transit stop(s) along the transit route. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ list_size
+ list_size{transit_route_segment_number
+ transit_stop_scheduled_time}.

Additional Sizing Assumptions:
SIZE=transit_route_number+ list_size
+TRANSIT_ROUTE_SEGS{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 transit vehicle's availability for work. .

Additional Sizing Assumptions:
SIZE=2;

transit_vehicle_collected_maintenance_data

This data flow is used by processes within the Manage Transit function and contains data collected from the transit vehicle. The data is produced by sensors analyzing conditions on-board the vehicle during the course of its operation. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_mileage_accumulated
+ transit_vehicle_operating_condition.

Additional Sizing Assumptions:
None

transit_vehicle_collected_maintenance_data_request

This data flow is used by processes within the Manage Transit function and contains a request for data collected on-board the transit vehicle. The data is produced by sensors analyzing conditions on-board the vehicle during the course of its operation. .

Additional Sizing Assumptions:
SIZE=1;

transit_vehicle_collected_trip_data

This data flow is used by processes within the Manage Transit function and contains data collected from the transit vehicle. The data is produced by sensors analyzing conditions on-board the vehicle during the course of its operation. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_passenger_loading

+ transit_vehicle_running_times.

Additional Sizing Assumptions:
None

transit_vehicle_corrective_instructions

This data flow is used within the Manage Transit function and contains instructions for a transit vehicle operator 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 transit vehicle operator by an interface process. .

Additional Sizing Assumptions:
SIZE=128;

transit_vehicle_data

This data flow is used by processes within the Manage Transit function and contains data about transit vehicles in the fleet operated by the function. This data is used in the planning of routes and schedules for regular transit services. It will have been obtained from processing the input to sensors on-board each transit vehicle during the course of their operation. The data flow consists of the following items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_identity + transit_vehicle_passenger_loading}.

Additional Sizing Assumptions:
SIZE=list_size
+ITS_TRANSIT_VEHS{transit_vehicle_identity+transit_vehicle_passenger_loading};

transit_vehicle_data_for_archive

This data flow within the Manage Transit function contains data about transit vehicles in the fleet operated by the function. This data is to be stored for later use. The data flow consists of the following items each of which is defined in its own DDE:

transit_vehicle_data
+ transit_vehicle_information.

Additional Sizing Assumptions:
None

transit_vehicle_data_for_security

This data flow is used by processes within the Manage Transit function and contains information sent to the transit security function. This data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_off_route_indication
+ transit_vehicle_location_for_security.

Additional Sizing Assumptions:
None

transit_vehicle_deviation_data

This data flow is used within the Manage Transit function and contains data showing to what extent a transit 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 transit vehicle operator. .

Additional Sizing Assumptions:
SIZE=128;

transit_vehicle_deviation_request

This data flow is sent by the Provide Driver and Traveler Services function to the Manage Transit function. It contains a request for the provision of data on the current transit service deviations for output to a traveler. .

Additional Sizing Assumptions:
SIZE=1;

transit_vehicle_deviation_update

This data flow is used within the Manage Transit function. It contains the estimated time of arrival of several transit vehicles at stop(s) along their route(s) plus the route and service number on which they are operating. It is used for multiple transit vehicle deviations where one or more routes are affected and consists of the following data items each of which is defined in its own DDE:

list_size
+ 1{transit_vehicle_identity
  + transit_vehicle_time
  + transit_route_number
  + transit_route_segment_number}list_size.

Additional Sizing Assumptions:
SIZE=TRANSIT_VEH_DEVS{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 transit 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. .

Additional Sizing Assumptions:
SIZE=16;

transit_vehicle_deviations_details

This data flow is used within the Manage Transit function. It contains details of the deviations of transit vehicles from their published routes and schedules 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.

Additional Sizing Assumptions:
None

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 transit vehicles from their published routes and schedules for use as a source of data to be sent to processes in other functions. .

Additional Sizing Assumptions:
SIZE=1;

transit_vehicle_deviations_from_schedule

This data flow is used within the Manage Transit function and contains the deviations of a transit vehicle from its published schedule. It is used in calculating the return to the published schedule where the deviation is major and/or it applies to several vehicles on a particular route. .

Additional Sizing Assumptions:
SIZE=32;

transit_vehicle_disable_from_operator

This data flow is initiated by the transit system operator and sent to the Manage Transit function to disable a transit vehicle. Conditions where this command may occur include an incident in progress concerning the transit vehicle, such as a hijacking or armed robbery. This command would not be used for a less serious incident, such as an argument between passengers, or for a health emergency (e.g., heart attack) where the vehicle might be moving towards a hospital, or paramedics are on the way. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time
+ transit_vehicle_location.

Additional Sizing Assumptions:
None

transit_vehicle_disable_reset

This data flow contains the command to reset the transit vehicle for transit vehicle operator logon. Conditions where this command may occur include when the transit vehicle operator has entered a password too many times and the system has not accepted it for operator authentication (i.e., a threshold was reached), or if an incident was in progress and the transit vehicle was disabled, but the incident is now over and the disabling is to be cancelled. The data flow consists of the following data items each of which is defined in its own DDE:

date
+ time
+ transit_vehicle_location.

Additional Sizing Assumptions:
None

transit_vehicle_disabled

This data flow is initiated by the transit system operator and sent through the Manage Emergency Services function to the transit vehicle operator on-board a transit vehicle. The data flow contains status of the transit vehicle disabling initiated by the transit system operator during a serious incident or hijacking on the vehicle. .

Additional Sizing Assumptions:
SIZE=1024;

transit_vehicle_eta

This data flow is used within the Manage Transit function. It contains the estimated time of arrival of a transit vehicle at the end of a transit route segment, which is usually a stop, plus the route and service number on which it

is operating. It is used for individual transit vehicle deviations and contains the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_vehicle_time
+ transit_route_number
+ transit_route_segment_number.

Additional Sizing Assumptions:
None

transit_vehicle_eta_for_advisory

This data flow is used as an interface between the Manage Transit and Provide Driver and Traveler Information functions. It contains the estimated time of arrival of a transit vehicle at the end of a transit route segment, which is usually a stop, plus the route and service number on which it is operating. It is used for individual transit vehicle deviations and contains the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_vehicle_time
+ transit_route_number.

Additional Sizing Assumptions:
None

transit_vehicle_fare_collection_data

This data store contains details of the transit fare transactions that have been processed on the vehicle as a result of travelers coming on-board and requesting rides that they have not paid for at the roadside, i.e. a transit stop. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_fare_collection_data}.

Additional Sizing Assumptions:
SIZE=list_size+TRANSIT_USERS_PER_ROUTE{transit_fare_collection_data};

transit_vehicle_fare_collection_method

This data flow contains an indication of whether a batch or interactive method is being used for processing the fare collection data. .

Additional Sizing Assumptions:
SIZE=1;

transit_vehicle_fare_data

This data flow is sent by the Provide Electronic Payment Services function to the Manage Transit function and contains details of the fares currently being charged for regular transit services. It is for use in calculating fares that are to be paid by travelers on-board a transit vehicle and consists of the following data item which is defined in its own DDE:

transit_fares.

Additional Sizing Assumptions:
None

transit_vehicle_fare_payment_confirmation

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that the previous request for the cost of the current transit fare has been deducted from the credit currently stored by the traveler's traveler card / payment instrument has been completed successfully. The data flow is used when the traveler is paying for the transit fare on-board a transit vehicle and consists of the following data item which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

transit_vehicle_fare_payment_debited

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that the cost of the current transit fare will be deducted by the financial institution from the credit identity previously provided by the traveler card / payment instrument being used by the traveler at the roadside. It is only sent when a credit identity has been previously received from the traveler card / payment instrument. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

transit_vehicle_fare_payment_request

This data flow is used within the Provide Electronic Payment Services function and contains the request for the cost of the current transit fare to be deducted from the credit currently stored by the traveler's traveler card / payment instrument, when it is being used on-board a transit vehicle. It is only sent when a value of stored credit has been previously received from the traveler card / payment instrument. The data flow consists of the following data item which is defined in its own DDE:

transit_fare.

Additional Sizing Assumptions:
None

transit_vehicle_identity

This data flow contains the identity of an individual transit vehicle and is used to identify the source and/or ownership of other data. .

Additional Sizing Assumptions:
SIZE=16;

transit_vehicle_information

This data flow is used by processes within the Manage Transit function and contains data about an individual transit vehicle. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_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_off_route_indication
+ transit_service_status.

Additional Sizing Assumptions:
None

transit_vehicle_junction_priority

This data flow contains data necessary for a transit vehicle to be given priority at an indicator that is a particular set of junction control signals. The data flow is sent directly from the transit vehicle to the junction controller, which is assumed to be capable of giving priority to the correct phase(s) for any received priority request. .

Additional Sizing Assumptions:
SIZE=1;

transit_vehicle_location

This data flow is used within the Manage Transit function to provide the exact location of the transit vehicle. It contains the transit vehicle location plus its identity and consists the following items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_vehicle_location_data.

Additional Sizing Assumptions:
None

transit_vehicle_location_data

This data flow is used within the Manage Transit function to provide the exact location of the transit vehicle. It is based on the standard vehicle location data supplemented with additional data that is only relevant to transit vehicles. The data flow consists of the following data item which is defined in its own DDE:

location_identity.

Additional Sizing Assumptions:
None

transit_vehicle_location_for_advisories

This data flow is used within the Manage Transit function to provide the exact location of a transit vehicle for the provision of advisory information on board a transit vehicle. It contains the transit vehicle location plus its identity. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location.

Additional Sizing Assumptions:
None

transit_vehicle_location_for_alarms

This data flow is used to notify the Manage Emergency function of the exact location of the transit vehicle. It contains the transit vehicle location plus its identity. It is used to provide the location of the transit vehicle in which a traveler has initiated an alarm or emergency notification. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location.

Additional Sizing Assumptions:
None

transit_vehicle_location_for_deviation

This data flow is used within the Manage Transit function to provide the exact location of the transit vehicle for the calculation of any return to schedule scenarios. It contains the transit vehicle location plus its identity and consists of the following item which is defined in its own DDE:

transit_vehicle_location.

Additional Sizing Assumptions:
None

transit_vehicle_location_for_eta

This data flow is used within the Manage Transit function to provide the exact location of the transit vehicle for calculation of its estimated time of arrival (eta). It contains the transit vehicle location plus the its identity and consists the following item which is defined in its own DDE:

transit_vehicle_location.

Additional Sizing Assumptions:
None

transit_vehicle_location_for_fares

This data flow is used within the Manage Transit function to provide the exact location of a transit vehicle for on-board fare collection and traveler services functions. It contains the transit vehicle location plus its identity. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location.

Additional Sizing Assumptions:
None

transit_vehicle_location_for_security

This data flow is used within the Manage Transit function to provide the exact location of a transit vehicle for purposes of security management operations. It contains the transit vehicle location plus its identity. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location.

Additional Sizing Assumptions:
None

transit_vehicle_location_for_sensors

This data flow is used to notify the Manage Emergency function of the exact location of the transit vehicle. It contains the transit vehicle location plus its identity. It is used to provide the location of the transit vehicle containing security sensor functions. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location.

Additional Sizing Assumptions:
None

transit_vehicle_location_for_store

This data flow is used within the Manage Transit function to provide the exact location of the transit vehicle for storage so that it can be used by other facilities and functions within ITS. It contains the transit vehicle location plus the its identity and consists the following item which is defined in its own DDE:

transit_vehicle_location.

Additional Sizing Assumptions:
None

transit_vehicle_location_for_surveillance_and_security

This data flow is used to notify the Manage Emergency function of the exact location of the transit vehicle. It contains the transit vehicle location plus its identity. It is used to provide the location of the transit vehicle containing security surveillance functions. It consists of the following data item which is defined in its own DDE:

transit_vehicle_location.

Additional Sizing Assumptions:
None

transit_vehicle_maintenance

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

transit_vehicle_maintenance_date
+ transit_vehicle_maintenance_mileage
+ transit_vehicle_maintenance_required.

Additional Sizing Assumptions:
SIZE=120{transit_vehicle_maintenance_date+ transit_vehicle_maintenance_mileage
+transit_vehicle_maintenance_required};

transit_vehicle_maintenance_data

This data flow is used within the Manage Transit function and contains maintenance data for a transit vehicle. This is for output to the transit system operator and is sent in response to a request for data received from the operator. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_vehicle_maintenance.

Additional Sizing Assumptions:
None

transit_vehicle_maintenance_data_request

This data flow is used within the Manage Transit function. It contains a request for the output of transit vehicle maintenance data to the transit system operator from the store of this data. The data flow consists of the following data item which is defined in its own DDE:

transit_vehicle_identity.

Additional Sizing Assumptions:
None

transit_vehicle_maintenance_data_update

This data flow is used within the Manage Transit function. It contains updates for the transit vehicle maintenance data, provided by the transit system operator. .

Additional Sizing Assumptions:
SIZE=64;

transit_vehicle_maintenance_date

This data flow is used within the Manage Transit function. It contains the date on which unscheduled maintenance activity on a particular transit vehicle must take place and is used as one of the identifiers of data within the vehicle's maintenance log. The vehicle's identity is stored in a separate data flow. The data flow consists of the following data item which is defined in its own DDE:

date.

Additional Sizing Assumptions:
None

transit_vehicle_maintenance_details

This data flow is used within the Manage Transit function and contains information about the maintenance required by an individual transit vehicle of a particular type. .

Additional Sizing Assumptions:
SIZE=4096;

transit_vehicle_maintenance_info

This data flow is used within the Manage Transit function. It contains maintenance and other information about transit vehicles for use by processes within the schedule transit vehicle maintenance facility. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_identity
    + transit_vehicle_operations_details}.

Additional Sizing Assumptions:
SIZE=list_size+ITS_TRANSIT_VEHS{transit_vehicle_identity
+transit_vehicle_operations_details};

transit_vehicle_maintenance_information

This data flow is used within the Manage Transit function and contains data on the need for maintenance of an individual transit vehicle based on its current condition. .

Additional Sizing Assumptions:
SIZE=1024000;

transit_vehicle_maintenance_log

This data flow contains a log of the maintenance carried out on an individual transit vehicle, the identity of which is stored in a separate data flow. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_maintenance_log_time
+ transit_vehicle_maintenance_log_date
+ transit_vehicle_maintenance_log_activity
+ transit_vehicle_maintenance_log_mileage.

Additional Sizing Assumptions:
SIZE=3650{transit_vehicle_maintenance_log_time+transit_vehicle_maintenance_log_mileage
+transit_vehicle_maintenance_log_activity+transit_vehicle_maintenance_log_date};

transit_vehicle_maintenance_log_activity

This data flow contains a brief description of the maintenance activity that has taken place on a particular transit vehicle took place. The vehicle's identity, plus the date, time and mileage at which the activity took place are stored in separate data flows. The data flow to accommodate a simple brief description of the activity. .

Additional Sizing Assumptions:
SIZE=32;

transit_vehicle_maintenance_log_data

This data flow is used within the Manage Transit function. It contains data for recording in the transit vehicle maintenance log that is held in the store of transit vehicle operations data. .

Additional Sizing Assumptions:
SIZE=64;

transit_vehicle_maintenance_log_date

This data flow is used within the Manage Transit function. It contains the date at which maintenance activity on a particular transit vehicle took place and is used as one of the identifiers of data within the vehicle's maintenance log. The vehicle's identity is stored in a separate data flow. The data flow consists of the following data item which is defined in its own DDE:

date.

Additional Sizing Assumptions:
None

transit_vehicle_maintenance_log_mileage

This data flow contains the vehicle mileage at which maintenance activity on a particular transit vehicle took place and is used as one of the identifiers of data within the vehicle's maintenance log. The vehicle's identity is stored in a separate data flow. .

Additional Sizing Assumptions:
SIZE=3;

transit_vehicle_maintenance_log_time

This data flow is used within the Manage Transit function. It contains the time at which maintenance activity on a particular transit vehicle took place and is used as one of the identifiers of data within the vehicle's maintenance log.

The vehicle's identity is stored in a separate data flow. The data flow consists of the following data item which is defined in its own DDE:

time.

Additional Sizing Assumptions:
None

transit_vehicle_maintenance_mileage

This data flow contains the mileage at which unscheduled maintenance activity on a particular transit vehicle must take place and is used as one of the identifiers of data within the vehicle's maintenance log. The vehicle's identity is stored in a separate data flow. .

Additional Sizing Assumptions:
SIZE=3;

transit_vehicle_maintenance_required

This data flow contains a brief description of the unscheduled maintenance activity that must take place on a particular transit vehicle. The vehicle's identity, plus the date and mileage at which the activity must take place are stored in separate data flows. .

Additional Sizing Assumptions:
SIZE=32;

transit_vehicle_maintenance_schedule

This data flow contains the schedule for the maintenance of an individual transit vehicle. The identity of the vehicle is stored in a separate data flow. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_maintenance_schedule_date
+ transit_vehicle_maintenance_schedule_mileage
+ transit_vehicle_maintenance_schedule_activity.

Additional Sizing Assumptions:
SIZE=320{transit_vehicle_maintenance_schedule_activity
+transit_vehicle_maintenance_schedule_mileage
+transit_vehicle_maintenance_schedule_date};

transit_vehicle_maintenance_schedule_activity

This data flow contains a brief description of the maintenance activity that is to be carried out on a transit vehicle, either when it achieves a particular mileage, or an a particular date. Both mileage and date will be measured from the date of the vehicle's manufacture and are stored in separate data flows within the store of the maintenance schedules. .

Additional Sizing Assumptions:
SIZE=32;

transit_vehicle_maintenance_schedule_data

This data flow is used within the Manage Transit function and contains the schedule for the maintenance of an individual transit vehicle. .

Additional Sizing Assumptions:

SIZE=2048000;

transit_vehicle_maintenance_schedule_date

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

date.

Additional Sizing Assumptions:
None

transit_vehicle_maintenance_schedule_mileage

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

Additional Sizing Assumptions:
SIZE=3;

transit_vehicle_maintenance_specs

This data flow is used within the Manage Transit function and contains the maintenance specifications for individual transit vehicles by type and identity. It is used by processes within the Manage Transit function and contains the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_vehicle_type
+ transit_vehicle_maintenance_details.

Additional Sizing Assumptions:
None

transit_vehicle_maintenance_specs_update

This data flow is used within the Manage Transit function. It contains updated transit 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.

Additional Sizing Assumptions:
None

transit_vehicle_maintenance_verification_results

This data flow is used within the Manage Transit function and contains verification that maintenance of a transit vehicle has been successfully completed. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag

+ transit_technician_identity
+ transit_technician_work_assignment
+ transit_vehicle_identity.

Additional Sizing Assumptions:
None

transit_vehicle_maintenance_work

This data flow contains information on the maintenance work to be carried out an a transit vehicle. These will include but not be limited to change engine oil, change engine cooling water, add anti-freeze to engine cooling water, check transit vehicle operator's windshield washer system and top up if necessary, check engine fluid levels and top up if necessary, check vehicle battery levels and top up if necessary, check vehicle brakes and replace pads and/or top up fluid levels if necessary, carry out maintenance based on vehicle mileage, clean external of vehicle, clean interior of vehicle, check transmission state and top up fluid levels if necessary, and check vehicle running equipment (springs, dampers, muffler, etc.) .

Additional Sizing Assumptions:
SIZE=30;

transit_vehicle_mileage_accumulated

This data flow contains the total mileage accumulated by a transit vehicle. .

Additional Sizing Assumptions:
SIZE=3;

transit_vehicle_off_route_indication

This data flow is used by processes within the Manage Transit function and sent to a process in the Emergency Services function. It contains information that indicates, after analysis, that a transit vehicle is not in its planned location on its assigned route. The ETA of the transit vehicle along the assigned route indicates its planned location. This data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_eta
+ transit_vehicle_location.

Additional Sizing Assumptions:
None

transit_vehicle_on_board_data

This data flow is used within the Manage Transit function and contains data from systems operating on-board the transit vehicle. An example of the type of data provided is passenger doors open or closed. .

Additional Sizing Assumptions:
SIZE=64;

transit_vehicle_operating_condition

This data flow is used by processes within the Manage Transit function and contains the status of transit vehicle's drive-line, e.g. 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. .

Additional Sizing Assumptions:
SIZE=16;

transit_vehicle_operating_data

This data store is used within the Manage Transit function and contains information collected from each transit vehicle in the fleet operated by the function about the way in which it is operating. It consists of the following data items each of which is defined in its own DDE:

list_size
+ 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_off_route_indication
+ transit_service_status}.

Additional Sizing Assumptions:
SIZE=list_size+ITS_TRANSIT_VEHS{transit_vehicle_eta+transit_vehicle_collected_trip_data
+ transit_vehicle_collected_maintenance_data+transit_vehicle_deviation_update
+ transit_vehicle_location+transit_vehicle_schedule_deviations
+ transit_vehicle_off_route_indication
+ transit_service_status};

transit_vehicle_operational_data

This data flow is used within the Manage Transit function and contains operational data collected from transit vehicles while in service. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_availability
+ transit_vehicle_data
+ transit_vehicle_passenger_data}.

Additional Sizing Assumptions:
SIZE=list_size+ITS_TRANSIT_VEHS{transit_vehicle_availability+transit_vehicle_data
+transit_vehicle_passenger_data};

transit_vehicle_operations_data

This data store is used within the Manage Transit function. It contains maintenance and other information about transit vehicles for use by processes within the schedule transit vehicle maintenance facility. The data store consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_identity
+ transit_vehicle_operations_details}.

Additional Sizing Assumptions:
SIZE=list_size+ITS_TRANSIT_VEHS{transit_vehicle_identity
+transit_vehicle_operations_details};

transit_vehicle_operations_details

This data flow is used within the Manage Transit function. It contains information about the maintenance of a transit vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_maintenance_specs
+ transit_vehicle_maintenance_log

+ transit_vehicle_maintenance_schedule
+ transit_vehicle_maintenance.

Additional Sizing Assumptions:
None

transit_vehicle_operator_authentication

This data flow is used by processes within the Manage Transit function. It contains the status of the transit vehicle operator authentication to the transit vehicle when he attempts to logon to the vehicle. This data flow is a response to the request to authenticate the operator via the Transit Management Center. This data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_location
+ transit_vehicle_identity
+ transit_vehicle_operator_identity
+ confirmation_flag.

Additional Sizing Assumptions:
None

transit_vehicle_operator_authentication_database_update

This data flow contains updates to the transit vehicle operator authentication database on-board a transit vehicle. It also contains a request for database information from the on-board authentication database. .

Additional Sizing Assumptions:
SIZE=1024;

transit_vehicle_operator_authentication_status

This data flow is used by processes within the Manage Transit function. It contains the status of the transit vehicle operator authentication to the transit vehicle when he attempts to logon to the vehicle. This data flow is a response to the operator authentication being done on-board the transit vehicle (as opposed to at the Transit Management Center). This data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_location
+ transit_vehicle_identity
+ transit_vehicle_operator_identity
+ confirmation_flag.

Additional Sizing Assumptions:
None

transit_vehicle_operator_availability

This data flow is used within the Manage Transit function and contains information that represents the transit vehicle operator's current, future hourly, daily weekly and monthly calendar availability. The data will be stored for future access by the transit system operator. .

Additional Sizing Assumptions:
SIZE=256;

transit_vehicle_operator_availability_considerations

This data flow is used within the Manage Transit function and contains information that is used in assessing the transit vehicle operator's availability for work. It will comprise details of such things as the operator's vacation

status, health status, accumulated work hours, and any laws and policies that will affect the operator. The data is used in assessing the operator's eligibility for future work assignments. .

Additional Sizing Assumptions:
SIZE=512;

transit_vehicle_operator_availability_data

This data flow is used within the Manage Transit function and contains information that represents the transit vehicle operator's current, future hourly, daily weekly and monthly calendar availability. The data will be used in the assessment of the operator's eligibility for future work assignments. .

Additional Sizing Assumptions:
SIZE=512;

transit_vehicle_operator_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 operator's availability for future work, that have been provided by the operator. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_operator_identity
+ transit_vehicle_operator_availability_considerations
+ transit_vehicle_operator_route_details.

Additional Sizing Assumptions:
None

transit_vehicle_operator_consideration_updates

This data flow is used within the Manage Transit function and contains updates to the consideration data used to assess a operator's availability for future work, that have been provided by the transit system operator. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_operator_identity
+ transit_vehicle_operator_cost_effectiveness_considerations
+ transit_vehicle_operator_eligibility_considerations
+ transit_vehicle_operator_performance_considerations
+ transit_vehicle_operator_route_assignment_considerations.

Additional Sizing Assumptions:
None

transit_vehicle_operator_cost_effectiveness

This data flow is used within the Manage Transit function and contains the transit vehicle operator's cost effectiveness and is used primarily to reduce overtime pay and to assign higher paid operators to the more demanding route assignments. The data will be stored for future access by the transit system operator. .

Additional Sizing Assumptions:
SIZE=256;

transit_vehicle_operator_cost_effectiveness_considerations

This data flow is used within the Manage Transit function and contains information that is used in assessing the transit vehicle operator's cost effectiveness. It will contain such things as the operator's accumulated work hours, and hourly wage. The data is used in assessing the operator's eligibility for future work assignments. .

Additional Sizing Assumptions:
SIZE=128;

transit_vehicle_operator_cost_effectiveness_data

This data flow is used within the Manage Transit function and contains the transit vehicle operator's cost effectiveness and is used primarily to reduce overtime pay and to assign higher paid operators to the more demanding route assignments. The data will be used in the assessment of the operator's eligibility for future work assignments. .

Additional Sizing Assumptions:
SIZE=512;

transit_vehicle_operator_data_for_archive

This data flow is used within the Manage Transit function. It contains data about transit vehicle operators and their route assignments. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_operator_info_for_archive
+ transit_route_assign_for_archive.

Additional Sizing Assumptions:
None

transit_vehicle_operator_details

This data flow is used within the Manage Transit function and contains data about an individual transit vehicle operator. The data is used to assess the operator's eligibility for future work assignments and as a source of data about operators for the transit system operator. It consists of the following data items each of which is defined in its own DDE:

transit_vehicle_operator_identity
+ transit_vehicle_operator_availability_considerations
+ transit_vehicle_operator_availability
+ transit_vehicle_operator_cost_effectiveness_considerations
+ transit_vehicle_operator_cost_effectiveness
+ transit_vehicle_operator_eligibility_considerations
+ transit_vehicle_operator_eligibility
+ transit_vehicle_operator_performance_considerations
+ transit_vehicle_operator_performance
+ transit_vehicle_operator_route_details
+ transit_vehicle_operator_route_assignment_considerations.

Additional Sizing Assumptions:
None

transit_vehicle_operator_eligibility

This data flow is used within the Manage Transit function and contains the transit vehicle operator's eligibility to perform a route assignments. The data will be stored for future access by the transit system operator. .

Additional Sizing Assumptions:
SIZE=256;

transit_vehicle_operator_eligibility_considerations

This data flow is used within the Manage Transit function and contains information that is used in assessing the transit vehicle operator's eligibility. It will contain such things as a list of operator certifications, experience, and education. The data is used in assessing the operator's eligibility for future work assignments. .

Additional Sizing Assumptions:
SIZE=512;

transit_vehicle_operator_eligibility_data

This data flow is used within the Manage Transit function and contains the transit vehicle operator's eligibility to perform a route assignment. The data will be used in the allocation of future work assignments for the operator. .

Additional Sizing Assumptions:
SIZE=256;

transit_vehicle_operator_identity

This data flow is used within the Manage Transit function and contains the identity of an individual transit vehicle operator. It is used by processes in the Manage Transit function that authenticate operators and allocate work assignments to operators. .

Additional Sizing Assumptions:
SIZE=16;

transit_vehicle_operator_info_for_archive

This data flow is used within the Manage Transit function. It contains data from the store of transit vehicle operator information that has been previously requested by the transit system operator and may relate to one or more of the transit vehicle operators. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_operator_details}.

Additional Sizing Assumptions:
SIZE=list_size+TRANSIT_VEHICLE_OPERATORS{transit_vehicle_operator_details};

transit_vehicle_operator_information

This data store is used within the Manage Transit function and contains data about the transit vehicle operators. The data is used to allocate future work assignments to operators. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_operator_details}.

Additional Sizing Assumptions:
SIZE=list_size+TRANSIT_VEHICLE_OPERATORS{transit_vehicle_operator_details};

transit_vehicle_operator_information_output

This data flow is used within the Manage Transit function. It contains data from the store of transit vehicle operator information that has been previously requested by the transit system operator and may relate to one or more of the transit vehicle operators. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_operator_details}.

Additional Sizing Assumptions:
SIZE=list_size+TRANSIT_VEHICLE_OPERATOR_DETAILS{transit_vehicle_operator_details};

transit_vehicle_operator_information_output_request

This data flow is used within the Manage Transit function to request output of the information currently stored about one or more transit vehicle operators. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_operator_identity}.

Additional Sizing Assumptions:
SIZE=list_size+TRANSIT_VEHICLE_OPERATORS{transit_vehicle_operator_identity};

transit_vehicle_operator_performance

This data flow is used within the Manage Transit function and contains a transit vehicle operator's past and current route assignment performance. The data will be stored for future access by the transit system operator. .

Additional Sizing Assumptions:
SIZE=512;

transit_vehicle_operator_performance_considerations

This data flow is used within the Manage Transit function and contains information that is used in assessing a transit vehicle operator's performance in carrying out previously assigned work. It will contain such things as details of any moving violations and accidents in which the operator has been involved, plus comments from supervisors on the operator's performance. The data will be used in deciding the allocation of future work to the operator. .

Additional Sizing Assumptions:
SIZE=512;

transit_vehicle_operator_performance_data

This data flow is used within the Manage Transit function and contains a transit vehicle operator's past and current route assignment performance. The data will be used in the assessment of the operator's eligibility for future work assignments. .

Additional Sizing Assumptions:
SIZE=512;

transit_vehicle_operator_personal_emergency_request

This data flow is used to carry data about an emergency situation that applies to a transit vehicle operator. It contains the following data items each of which is defined in its own DDE:

transit_vehicle_operator_identity
+ transit_vehicle_location.

Additional Sizing Assumptions:
None

transit_vehicle_operator_route_assignment_considerations

This data flow is used within the Manage Transit function and contains information that is used in making operator route assignments. It will contain such things as details of any operator route preferences and the operator's seniority. The data will be used in deciding the allocation of future work to the operator.. .

Additional Sizing Assumptions:
SIZE=256;

transit_vehicle_operator_route_data

This data store is used within the Manage Transit function to store data that is used in the assignment of new routes to transit vehicle operators. The data is provided by other processes within the function. The store consists of the following data items each of which is defined in its own DDE:

paratransit_services_for_transit_vehicle_operators
+ transit_services_for_transit_vehicle_operators
+ list_size
+ list_size{transit_vehicle_identity
+ transit_vehicle_availability}.

Additional Sizing Assumptions:
SIZE=paratransit_services_for_transit_vehicle_operators+transit_services_for_transit_vehicle_operators
+list_size+TRANSIT_VEHS{transit_vehicle_identity+transit_vehicle_availability};

transit_vehicle_operator_route_details

This data flow is used within the Manage Transit function and contains the assignment of the transit vehicle operator to a previous transit route and schedule. This data will be used to provide the operator with new work assignments. .

Additional Sizing Assumptions:
SIZE=128;

transit_vehicle_operator_wide_area_alerts

This data flow is used to provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction information to be sent to a transit vehicle operator. The data flow consists of the following data item which is defined in its own DDE:

wide_area_alert_notification_for_transit.

Additional Sizing Assumptions:
None

transit_vehicle_passenger_capacity

This data flow is used within the Manage Transit function and defines the number of passengers that can be carried by a particular transit vehicle. .

Additional Sizing Assumptions:
SIZE=1;

transit_vehicle_passenger_data

This data flow is used within the Manage Transit function and contains the number of passengers carried by a transit vehicle while in service. It is derived from on-board vehicle fare collection data and may be used for calculating future transit schedules. It consists of the following data items each of which is defined in its own DDE:

transit_passenger_numbers
+ transit_route_number
+ transit_route_segment_number
+ transit_route_use_time
+ traveler_category
+ transit_vehicle_identity
+ transit_vehicle_fare_collection_data.

Additional Sizing Assumptions:
None

transit_vehicle_passenger_loading

This data flow is used by processes within the Manage Transit function and contains the number of passengers (users of the transit system) carried by a transit vehicle on each part of its route, i.e. each transit route segment. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ transit_route_number
+ list_size
+ list_size{transit_route_segment_number + transit_vehicle_passengers}.

Additional Sizing Assumptions:
SIZE=transit_vehicle_identity+transit_route_number+list_size
+TRANSIT_ROUTE_SEGS{transit_route_segment_number+transit_vehicle_passengers};

transit_vehicle_passenger_operational_data

This data flow is used within the Manage Transit function and contains the number of passengers carried by a transit vehicle while in service. It is derived from the numbers of passengers on the vehicle for each transit route segment as counted by on-board vehicle sensors. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_route_segment_number + transit_vehicle_passengers}.

Additional Sizing Assumptions:
SIZE=list_size
+TRANSIT_ROUTE_SEGS{transit_route_segment_number+transit_vehicle_passengers};

transit_vehicle_passengers

This data flow contains a count of the number of passengers (users of the transit system) that were on-board a transit vehicle on a particular transit route segment. This data is measured by counting the numbers of travelers that enter and leave the vehicle at each transit stop, and is determined independently of any transit fare collection process. .

Additional Sizing Assumptions:
SIZE=2;

transit_vehicle_pedestrian_priority

This data flow contains data necessary for a transit vehicle to be given priority at an indicator that is a particular set of pedestrian signals. The data flow is sent directly from the transit vehicle to the pedestrian controller, which is assumed to be capable of giving priority to the correct phase. .

Additional Sizing Assumptions:
SIZE=1;

transit_vehicle_priority_request

This data flow is used within the Manage Transit function. It contains a request for the output of the priority signal from a transit vehicle to traffic management equipment at the roadside. .

Additional Sizing Assumptions:
SIZE=8;

transit_vehicle_ramp_priority

This data flow is sent from the Manage Transit function to the Manage Traffic function and contains the data necessary for a transit vehicle to be given priority at an indicator that is a particular set of highway entry ramp control signals. The data flow is sent directly from the transit vehicle to the ramp controller, which is assumed to be capable of giving priority to the correct ramp or lane if multiple ramps or lanes are involved. .

Additional Sizing Assumptions:
SIZE=1;

transit_vehicle_roadway_priorities

This data flow is sent from the Manage Transit function to the Manage Traffic function and contains data necessary for an individual transit vehicle to be given priority at 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 transit vehicle to the next controller along its route and therefore is not subject to any centralized coordination. Local coordination may be provided if there are links between adjacent controllers. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_junction_priority
+ transit_vehicle_pedestrian_priority
+ transit_vehicle_ramp_priority
+ transit_vehicle_sign_priority.

Additional Sizing Assumptions:
None

transit_vehicle_running_times

This data flow is used within the Manage Transit function. It contains the time at which it is expected that a transit vehicle will reach the end of each transit route segment on its route and is used to determine any schedule deviations. The end of a transit route segment is usually a transit stop and the data is thus the expected arrival time of a transit vehicle at each of the transit stop(s) along the transit route. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ list_size
+ list_size{transit_route_segment_number
    + transit_stop_scheduled_time}.

Additional Sizing Assumptions:

SIZE=transit_route_number+ list_size
+TRANSIT_ROUTE_SEGS{transit_route_segment_number+transit_stop_scheduled_time};

transit_vehicle_schedule_deviation

This data flow is used within the Manage Transit function and contains the deviation of a transit vehicle from its published schedule. .

Additional Sizing Assumptions:
SIZE=32;

transit_vehicle_schedule_deviations

This data flow is sent from the Manage Transit function to processes in the Provide Driver and Traveler Services function. It contains the deviations of transit vehicles from their published routes and schedules at transit route segments that have already been completed, i.e. at transit stops that have been passed by the vehicle. The data is used to provide information about the current state of the transit service operation to a traveler, and consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{transit_vehicle_identity
+ transit_vehicle_achieved_time
+ transit_route_number
+ transit_route_segment_number}.

Additional Sizing Assumptions:
SIZE=list_size+ITS_TRANSIT_VEHS{transit_vehicle_identity+transit_vehicle_achieved_time
+transit_route_number+transit_route_segment_number};

transit_vehicle_sensor_control

This data flow contains control parameters for sensors located on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

vehicle_threat_sensor_control
+ vehicle_object_detection_sensor_control.

Additional Sizing Assumptions:
None

transit_vehicle_sensor_data

This data flow contains the direct output of sensors as well as the processed output of sensors located on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

vehicle_threat_sensor_data
+ field_processed_vehicle_threat_sensor_data
+ vehicle_object_detection_sensor_data
+ field_processed_vehicle_object_detection_sensor_data
+ transit_vehicle_location_for_sensors.

Additional Sizing Assumptions:
None

transit_vehicle_sensor_status

This data flow contains the status of sensors located on-board a transit vehicle and includes of the configuration of the device and an indication of any device faults. It consists of the following data items each of which is defined in its own DDE:

vehicle_threat_sensor_status
+ vehicle_object_detection_sensor_status.

Additional Sizing Assumptions:
None

transit_vehicle_sign_priority

This data flow is sent from the Manage Transit function to the Manage Traffic function and contains data necessary for a transit vehicle to have a message output giving it priority at an indicator that is a particular dynamic message sign (DMS) or fixed message sign that has a transit priority message that can be displayed. The data flow is sent directly from the transit vehicle to the sign controller and may consist of either a single character that will enable the sign controller to output the correct message from its list of known messages, or a string of characters for a controller driving a DMS. .

Additional Sizing Assumptions:
SIZE=20;

transit_vehicle_status

This data flow is used to pass information about the transit 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_location.

Additional Sizing Assumptions:
None

transit_vehicle_surveillance

This data flow is used within the Manage Emergency Services function and contains the direct video and audio output of surveillance equipment as well as the processed output located on-board a transit vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_secure_area_images
+ field_processed_vehicle_secure_area_images
+ vehicle_secure_area_audio
+ field_processed_vehicle_secure_area_audio
+ transit_vehicle_location_for_surveillance_and_security.

Additional Sizing Assumptions:
None

transit_vehicle_threat_data

This data flow contains the threat data including threats detected, threshold alarms, and verified threats on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

vehicle_secure_area_sensor_threat_data

+ vehicle_secure_area_surveillance_threat_data.

Additional Sizing Assumptions:
None

transit_vehicle_time

This data flow is used within the Manage Transit function. It contains the estimated time of arrival of a transit vehicle at the end of the next transit route segment not so far reached during its journey along the transit route. The end of a transit route segment is usually a transit stop and the data is thus the estimated arrival time of a transit vehicle at each of the remaining transit stop(s) along the transit route. The identity of the transit route segment to which this data applies is carried in an accompanying data flow. .

Additional Sizing Assumptions:
SIZE=7;

transit_vehicle_type

This data flow identifies transit vehicles by their type and is used by processes within the Manage Transit function. Examples of transit vehicle types include, but are not limited to: articulated motor buses, cable cars, double-decked buses, ferryboats, light rail vehicles (streetcars), monorail vehicles, commuter rail locomotives (plus passenger coaches and self-propelled passenger cars), school buses, trolley buses, vans, revenue vehicles (25', 30', 40'), articulated vehicles, tow truck, shelter service truck. These examples appear in the National Transit Database. .

Additional Sizing Assumptions:
SIZE=2;

transit_vehicle_user_data

This data flow is used within the Manage Transit function and contains data about a transit vehicle for automatic output to traveler at transit stops. The data is output at the transit stop as the vehicle approaches and contains information about the vehicle such as the route number. It therefore consists of the following data items each of which is defined in its own DDE:

transit_route_number
+ transit_vehicle_time.

Additional Sizing Assumptions:
None

transit_wide_area_alert_info

This data flow is used to provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction information to be displayed at transit stops. The data flow consists of the following data item which is defined in its own DDE:

wide_area_alert_notification_for_transit.

Additional Sizing Assumptions:
None

transportation_system_status_for_kiosks

This data flow is used to communicate the general status of the transportation system to a traveler requesting that information at a kiosk. The data flow consists of the following data items each of which are defined in their own DDE:

disaster_transportation_system_status
+ evacuation_transportation_system_status.

Additional Sizing Assumptions:
None

transportation_system_status_for_personal_devices

This data flow is used to communicate the general status of the transportation system to a traveler requesting that information when using a personal device. The data flow consists of the following data items each of which are defined in their own DDE:

disaster_transportation_system_status
+ evacuation_transportation_system_status.

Additional Sizing Assumptions:
None

transportation_system_status_for_vehicle

This data flow is used to communicate the general status of the transportation system to a vehicle. The data flow consists of the following data items each of which are defined in their own DDE:

disaster_transportation_system_status
+ evacuation_transportation_system_status.

Additional Sizing Assumptions:
None

transportation_system_status_to_isp

This data flow is used to communicate the general status of the transportation system to maintenance and construction during a disaster or evacuation. The data flow consists of the following data items each of which are defined in their own DDE:

disaster_transportation_system_status_for_isp
+ evacuation_transportation_system_status_for_isp.

Additional Sizing Assumptions:
None

transportation_system_status_to_m_and_c

This data flow is used to communicate the general status of the transportation system to maintenance and construction during a disaster or evacuation. The data flow consists of the following data items each of which are defined in their own DDE:

m_and_c_transportation_system_status_for_disaster
+ m_and_c_transportation_system_status_for_evacuation.

Additional Sizing Assumptions:
None

travel_services_data

This data flow is used within the Provide Driver and Traveler Services function to provide information on yellow pages, event, and other services that are currently available to the traveler. It consists of the following data items each of which is defined in its own DDE:

yellow_pages_data
+ event_information_advisory_data.

Additional Sizing Assumptions:
None

travel_services_data_request

This data flow is used within the Provide Driver and Traveler Services function and is used to request the Manage Traveler Information Services facility to provide data on yellow pages, event, and other services. It consists of the following data items each of which is defined in its own DDE:

yellow_pages_data_request
+ event_information_advisory_requests.

Additional Sizing Assumptions:
None

traveler_511_requests_for_archive

This data flow is used within the Provide Driver and Traveler Services function to provide data to the data archive about the requests from 511 systems for traveler information. It consists of the following data items each of which is defined in its own DDE:

yellow_pages_traveler_request
+ traveler_weather_info_request
+ event_information_request
+ transit_service_regional_request
+ transit_vehicle_deviation_request
+ traffic_data_request
+ multimodal_service_request
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
None

traveler_511_requests_for_archive_attributes

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data attribute information to the data archive about the parameters needed to describe requests from 511 traveler information systems. 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.

Additional Sizing Assumptions:
None

traveler_advanced_payment_at_roadside

This data flow is sent from the Manage Transit function to the Provide Electronic Payment Services function. It contains the cost of advanced payments that must be deducted from the credit currently stored on the traveler card / payment instrument, being used by a traveler at the roadside, i.e. a transit stop. These advanced payments may cover tolls, and/or parking lot charges, and/or transit fares. The data flow consists of the following data items each of which is defined in its own DDE:

stored_credit
+ parking_lot_cost
+ toll_cost
+ transit_fare.

Additional Sizing Assumptions:
None

traveler_advanced_payments_confirm

This data flow is used within the Provide Electronic Payment Services function and contains confirmation that a request for the advanced payment of the tolls, and/or parking lot charges, and/or transit fares, for a trip plan which has been accepted by the traveler. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ advanced_tolls_confirm
+ advanced_fares_confirm
+ advanced_traveler_charges_confirm.

Additional Sizing Assumptions:
None

traveler_advanced_payments_request

This data flow is used within the Provide Electronic Payment Services function and contains a request for advanced payment of the tolls, and/or parking lot charges, and/or transit fares for a trip which a traveler has confirmed. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ credit_identity
+ toll_route_segments
+ ride_segments

+ parking_space_details.

Additional Sizing Assumptions:
None

traveler_alarm_acknowledge

This data flow confirms that the request for emergency services previously sent by the traveler via a silent or audible alarm has been received by the Manage Emergency Services function. The traveler may be at a transit stop, rest area, park and ride lot, modal interchange facilities, etc. The information will be sent out as part of the response to an emergency or incident being detected within the network. The data flow consists of the following data item which is defined in its own DDE:

confirmation_flag.

Additional Sizing Assumptions:
None

traveler_alarm_request

This data flow is sent from the traveler to the Manage Emergency Services function and includes a silent or audible alarm request for emergency assistance. The traveler may be at a transit stop, rest area, park and ride lot, modal interchange facilities, etc. The data flow contains the following data items each of which is defined in its own DDE:

date
+ time
+ traveler_personal_emergency_request.

Additional Sizing Assumptions:
None

traveler_archive_catalog

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

Additional Sizing Assumptions:
SIZE=32;

traveler_archive_catalog_request

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

Additional Sizing Assumptions:
SIZE=32;

traveler_archive_data

This data flow is from the Provide Driver and Traveler Services function to the Manage Archive Data function. It contains a catalog and details of all of the service requests and confirmations input by the traveler via a personal device or kiosk, 511 traveler information requests, route guidance data, vehicle guidance probe data, parking lot

data, trip requests and traveler rideshare requests and data, other-routes data, road network use data, and traveler payment transaction data and meta-data. It contains the following data items each of which is defined in its own DDE:

traveler_archive_catalog
+ traveler_data_for_archive.

Additional Sizing Assumptions:
None

traveler_archive_data_request

This data flow from the Manage Archived Data function to the Provide Driver and Traveler Services function contains the request for the data held by the Provide Driver and Traveler Services function. The request for data may include either or both the description of the data required or a time frame over which the requested information may be available. .

Additional Sizing Assumptions:
SIZE=32;

traveler_archive_input

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

traveler_archive_request
+ traveler_archive_status.

Additional Sizing Assumptions:
None

traveler_archive_request

This data flow from the Manage Archived Data function to the Provide Driver and Traveler Services function contains the request for data collected and stored by the Provide Driver and Traveler Services function. This data flow includes request for service request data, information utilization data, route guidance data, source/destination trip data, vehicle probe data, and parking management data. It consists of the following data items each of which is defined in its own DDE:

traveler_archive_catalog_request
+ traveler_archive_data_request.

Additional Sizing Assumptions:
None

traveler_archive_status

This data flow is sent from the Manage Archived Data function to the Provide Driver and Traveler Services function. It is the status returned when traveler information archive data is sent from the Provide Driver and Traveler Services function to the Manage Archived Data function. .

Additional Sizing Assumptions:
SIZE=32;

traveler_category

This data flow is used within the Manage Transit function and contains the category of traveler to which the associated transit fare applies, e.g. adult, child, senior citizen, disabled, etc. .

Additional Sizing Assumptions:
SIZE=1;

traveler_confirm_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about the confirmation of trip details provided as the result of a traveler's previous trip request input from a personal device or kiosk. It consists of the following data items each of which is defined in its own DDE:

traveler_personal_trip_confirmation_for_archive
+ traveler_trip_confirmation_for_archive.

Additional Sizing Assumptions:
None

traveler_contact_information

This data flow contains contact information for the traveler. This information would include address, phone number(s) (possibly referenced to time of day), fax number, pager number, and email address .

Additional Sizing Assumptions:
SIZE=128;

traveler_contact_setting

This data flow contains traveler's contact information to be used in his personal profile for obtaining travel information. The data flow includes the following data items each of which is defined in its own DDE:

traveler_name
+ traveler_contact_information.

Additional Sizing Assumptions:
None

traveler_current_condition_request

This data flow is used within the Provide Driver and Traveler 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 traveler so that the response can be correctly returned. The data flow consists of the following item which is defined in its own DDE:

kiosk_identity.

Additional Sizing Assumptions:
None

traveler_current_condition_request_for_archive

This data flow is used within the Provider Driver and Traveler Services function. It is used to provide data to the data archive about requests made for 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:

traveler_current_condition_request.

Additional Sizing Assumptions:
None

traveler_data_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It contains details of all of the service requests and confirmations input by the traveler via a personal device or kiosk, route guidance data, vehicle guidance probe data, parking lot data, trip requests and traveler rideshare requests and data, requests from 511 traveler information systems, other-routes data, road network use data, and traveler 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
+ traveler_info_payments_transactions
+ traveler_info_payments_transactions_attributes
+ parking_lot_data_for_archive
+ parking_lot_data_for_archive_attributes
+ trip_request_for_archive
+ trip_request_for_archive_attributes
+ traveler_511_requests_for_archive
+ traveler_511_requests_for_archive_attributes
+ rideshare_for_archive
+ rideshare_for_archive_attributes
+ usage_for_archive
+ usage_for_archive_attributes.

Additional Sizing Assumptions:
None

traveler_device_identity

This data flow provides an identity of a device being used by a traveler to access ITS data. The identity is used to create device settings for subscription type transmission of personalized data. .

Additional Sizing Assumptions:
SIZE=16;

traveler_device_setting

This data flow contains information about the device used by the traveler to access travel information. The data flow contains a setting identity (so there can be multiple device settings per user), and specifics of the device which could include type of hardware, type of software, or modem speed and characteristics. It consists of the following data items each of which is defined in its own DDE:

traveler_device_identity
+device_setting.

Additional Sizing Assumptions:
None

traveler_event_information

This data flow is used within the Provide Driver and Traveler Services function and contains details of event information which is to be sent to the traveler interface facility for output using a kiosk. .

Additional Sizing Assumptions:
SIZE=128;

traveler_event_information_request

This data flow is used within the Provide Driver and Traveler Services function to transfer requests for event information from the traveler kiosk interface facility to the event information collection facility. .

Additional Sizing Assumptions:
SIZE=1;

traveler_event_information_request_for_archive

This data flow is used within the Provide Driver and Traveler Services function to provide data to the archive about the types of event information requested by a traveler at a kiosk. The data flow consists of the following data item which is defined in its own DDE:

traveler_event_information_request.

Additional Sizing Assumptions:
None

traveler_guidance_accepted

This data flow is used within the Provide Driver and Traveler Services function and contains the acceptance by the traveler of the previously provided route for autonomous or on-line guidance. Acceptance must be provided before guidance can begin. The data flow consists of the following data item which is defined in its own DDE:

route_identity.

Additional Sizing Assumptions:
None

traveler_guidance_data

This data flow is used within the Provide Driver and Traveler Services function and contains data input by the traveler to a personal device that is to be used in a guidance request. It consists of some or all of the following data items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:
None

traveler_guidance_instructions

This data flow is used within the Provide Driver and Traveler Services function. It contains details of the next route segment to be followed by the traveler in the form of which side of the road to walk, which cycle track to use, which transit service to take, etc. .

Additional Sizing Assumptions:
SIZE=8192;

traveler_guidance_request

This data flow is used within the Provide Driver and Traveler Services function and is used to request on-line dynamic or autonomous guidance for the traveler using a personal device. The choice of the type of guidance made by the traveler 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. .

Additional Sizing Assumptions:
SIZE=1;

traveler_guidance_route

This data flow is used within the Provide Driver and Traveler Services function and contains the data for a traveler's route which has been produced following a route request from the traveler. This data flow includes the information required to provide an initial route or a route change to a traveler who is en route. It consists of the following data items each of which is defined in its own DDE:

route_identity
+ traveler_route
+ traveler_identity.

Additional Sizing Assumptions:
None

traveler_handicap_access_request

This data flow is used to request assisted handicap access such as the available handicap parking facilities. .

Additional Sizing Assumptions:
SIZE=1024000;

traveler_identity

This data flow contains the identity of the traveler who is making a request for information or guidance, so that the results of the request can be sent back to the originating traveler. It may be passed to processes in functions outside the Provide Driver and Traveler Services function for the same purpose. The identity can be alphanumeric characters so that (for example) the traveler's family name and initials can be used. .

Additional Sizing Assumptions:
SIZE=24;

traveler_identity_store

This store is used within the Provide Driver and Traveler Services function and holds the identity of the traveler's Personal Device (PPD). This will be pre-loaded into the PPD during its manufacture and can be associated with its owner. .

Additional Sizing Assumptions:
SIZE=16;

traveler_incident_input

This data flow contains the digitized input from the secure area environment in the transit operations network. This data will have been converted from its raw input form by sensors within the Manage Transit function. .

Additional Sizing Assumptions:
SIZE=16;

traveler_info_data_archive

This store is used within the Provide Driver and Traveler Services function. It contains a catalog and details of all of the service requests and confirmations input by the traveler via a personal device or kiosk, route guidance data, vehicle guidance probe data, parking lot data, trip requests and traveler rideshare requests and data, other-routes data, road network use data, and traveler payment transaction data and meta-data It contains the following data items each of which is defined in its own DDE:

traveler_archive_catalog
+ traveler_data_for_archive.

Additional Sizing Assumptions:
None

traveler_info_payments_transactions

This data flow is sent by the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function. It is used to provide data about records of all payment transactions for the provision of other (yellow pages) services, driver and traveler map update services, traveler 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
+ traveler_map_update_payments_transactions
+ traveler_trip_payments_transactions
+ traveler_rideshare_payments_transactions.

Additional Sizing Assumptions:
None

traveler_info_payments_transactions_attributes

This data flow is used within the Provide Driver and Traveler 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 traveler map update services, traveler 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.

Additional Sizing Assumptions:
None

traveler_information

This data flow is used within the Provide Driver and Traveler Services function to provide requested travel services and yellow pages data to travelers in vehicles, including users of the transit system. It consists of the following data items each of which is defined in its own DDE:

traffic_data_for_advisories
+ transit_services_for_advisories.

Additional Sizing Assumptions:
None

traveler_information_for_511

This data store is used within the Provide Driver and Traveler Services function and contains traveler information for 511 systems such as traffic conditions, work zone and roadway maintenance information, roadway environment conditions, weather and event information, transit schedules, deviations, and fares, yellow pages information, current ferry and rail schedules, and airport status. It consists of the following data items each of which is defined in its own DDE:

event_information_for_511
+ multimodal_service_info_for_511
+ traffic_data_for_511
+ transit_deviations_for_511
+ transit_services_for_511
+ yellow_pages_data_for_511
+ weather_info_for_511.

Additional Sizing Assumptions:
None

traveler_information_request

This data flow is used within the Provide Driver and Traveler Services function to request that traveler services and yellow pages data be output to a traveler in a transit vehicle. The scope and transit route number data will be provided by the traveler, 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.

Additional Sizing Assumptions:
None

traveler_information_restrictions

This data flow is sent to the Manage Traveler information services function to protect sensitive traveler information for kiosks and personal devices. It consists of the following data items each of which is defined in its own DDE:

traveler_information_restrictions_for_travelers.

Additional Sizing Assumptions:
None

traveler_information_restrictions_for_traffic

This data flow is sent to the Manage Traffic function to protect sensitive traveler information. .

Additional Sizing Assumptions:
SIZE=64;

traveler_information_restrictions_for_transit

This data flow is sent to the Manage Transit function to protect sensitive traveler information. It consists of the following data items each of which is defined in its own DDE:

incident_status_update.

Additional Sizing Assumptions:
None

traveler_information_restrictions_for_travelers

This data flow is sent to the Manage Traveler information services function to protect sensitive traveler information. .

Additional Sizing Assumptions:
SIZE=64;

traveler_input_request

This data flow is used within the Provide Driver and Traveler Services function to request the input of data needed for a route request and which is not already present in the function's internal data stores. .

Additional Sizing Assumptions:

SIZE=256;

traveler_intrusion_motion_sensor_control

This data flow provides control commands for intrusion or motion detection sensors located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ intrusion_motion_sensor_control_data}.

Additional Sizing Assumptions:
None

traveler_intrusion_motion_sensor_data

This data flow contains actual sensor readings collected from intrusion or motion detection sensors located in secure areas frequented by travelers during normal operational hours, but typically empty during off-hours, including transit stops, rest areas, travel information centers, etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ intrusion_motion_sensor_data_collected}.

Additional Sizing Assumptions:
None

traveler_intrusion_motion_sensor_data_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from intrusion or motion detection sensors located in areas frequented by travelers during normal operational hours, but typically empty during off-hours, including transit stops, rest areas, travel information centers, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ intrusion_motion_sensor_data_collected.

Additional Sizing Assumptions:
None

traveler_intrusion_motion_sensor_status

This data flow is used within the Manage Emergency Services function to report the status of an intrusion or motion detection sensor located in areas frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, etc.). By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ intrusion_motion_sensor_fault_data}.

Additional Sizing Assumptions:
None

traveler_journey_end

This data flow is used within the Manage Transit function. It contains the identity of the route segment at the end of a traveler's journey. The identity will be that at which the traveler will leave the transit vehicle at the end of the ride. The data flow consists of the following data item which is defined in its own DDE:

transit_route_segment_identity.

Additional Sizing Assumptions:
None

traveler_journey_start

This data flow is used within the Manage Transit function. It contains the identity of the route segment at the start of a traveler's journey. The identity will either be that of the transit stop at which the traveler purchases a ride, or the segment at which the transit vehicle was located when the traveler purchased a ride from on-board the vehicle. The data flow consists of the following data item which is defined in its own DDE:

transit_route_segment_identity.

Additional Sizing Assumptions:
None

traveler_location

This data flow is used within the Provide Driver and Traveler Services function and contains the traveler's location as computed from sensor data.

location_identity.

Additional Sizing Assumptions:
None

traveler_location_for_autonomous_guidance

This data flow is used within the Provide Driver and Traveler Services function and contains the traveler's location as computed from sensor data. This is a high precision data flow that enables the location of the traveler to be pin-pointed to a high degree of accuracy and is used for traveler autonomous guidance purposes.

location_identity.

Additional Sizing Assumptions:
None

traveler_location_for_dynamic_guidance

This data flow is used within the Provide Driver and Traveler Services function and contains the traveler's location as computed from sensor data. This is a high precision data flow that enables the location of the traveler to be pin-pointed to a high degree of accuracy and is used for traveler dynamic guidance purposes.

location_identity.

Additional Sizing Assumptions:
None

traveler_location_for_emergencies

This data flow contains the traveler's location as computed from sensor data. This is a high precision data flow that enables the location of the traveler to be pin-pointed to a high degree of accuracy and is used to provide the destination for the emergency services to the emergency call-out message.

location_identity.

Additional Sizing Assumptions:
None

traveler_location_for_information

This data flow is used within the Provide Driver and Traveler Services function and contains the traveler's location as computed from sensor data. This is a high precision data flow that enables the location of the traveler to be pin-pointed to a high degree of accuracy and is used to filter personal information data output.

location_identity.

Additional Sizing Assumptions:
None

traveler_location_for_planning

This data flow is used within the Provide Driver and Traveler Services function and contains the traveler's location as computed from sensor data. This is a high precision data flow that enables the location of the traveler to be pin-pointed to determine the origin for trip planning requests and to act as a filter for traffic and travel information.

location_identity.

Additional Sizing Assumptions:
None

traveler_map_database

This data store is used by the Provide Driver and Traveler Services function. It contains details of the physical geometry of each segment of roads, transit routes, pathways, cycleways, etc., which may be used by a traveler. This data includes the location of such things as signs, bends, junctions, traffic lanes, transit stops, and their use, etc. For each segment, where available it also contains the historical average link journey time and queuing time computed from data recorded over the last several months, and available for different times of the day/days of the week, to take account of peak travel times, weekend travel, etc. .

Additional Sizing Assumptions:
SIZE=10240000;

traveler_map_update_payment_request

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains a request that payment be made for an update of the navigable map database used by the traveler for on-line personal guidance. The payment will be made by debiting the credit identity with the cost through the financial institution terminator. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ credit_identity
+ navigable_map_traveler_update_cost.

Additional Sizing Assumptions:

None

traveler_map_update_payment_response

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function and contains the response to a previous request from the traveler that payment be made for an update of the navigable map database used for on-line traveler guidance. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ traveler_identity.

Additional Sizing Assumptions:
None

traveler_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. .

Additional Sizing Assumptions:
SIZE=128;

traveler_map_update_request

This data flow is used within the Provide Driver and Traveler Services function and contains a request for an update of the navigable map database used for on-line traveler personal guidance. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ traveler_identity.

Additional Sizing Assumptions:
None

traveler_map_update_response

This data flow contains the response to a previous request from the traveler for an update of the navigable map database used for on-line traveler guidance. Payment can be made by reducing the credit and stored credit data items or by using a previously supplied credit identity through the financial institution using the previously supplied credit identity. The success of this transaction will be indicated by the confirmation flag data item. The data flow consists of the following data items and others each of which is defined in its own DDE:

confirmation_flag
+ navigable_map_traveler_update_cost
+ stored_credit
+ traveler_identity.

Additional Sizing Assumptions:
None

traveler_name

This data flow contains the traveler's name, which could be implemented as a single element, or as separate last and first name elements. .

Additional Sizing Assumptions:
SIZE=64;

traveler_object_detection_sensor_control

This data flow provides control commands for object detection sensors located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ object_sensor_control_data}.

Additional Sizing Assumptions:
None

traveler_object_detection_sensor_data

This data flow contains actual sensor readings collected from object detection sensors located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ object_sensor_data_collected}.

Additional Sizing Assumptions:
None

traveler_object_detection_sensor_data_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from object detection sensors located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ object_sensor_data_collected.

Additional Sizing Assumptions:
None

traveler_object_detection_sensor_status

This data flow is used within the Manage Emergency Services function to report the status of an object detection sensor located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, model interchange facilities, etc. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ object_sensor_fault_data}.

Additional Sizing Assumptions:

None

traveler_other_services_payment_request

This data flow is used to send traveler payment information for the confirmed use of other (yellow pages) services that my (or may not) be part of a confirmed trip from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function. It contains the following data items each of which is defined in its own DDE:

traveler_identity
+ credit_identity
+ yellow_pages_dining_reservation
+ yellow_pages_lodging_reservation
+ yellow_pages_ticket_purchase.

Additional Sizing Assumptions:
None

traveler_other_services_payment_result

This data flow is sent by the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function to indicate the payment for a confirmed trip has been successfully completed. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ other_services_payment_confirm.

Additional Sizing Assumptions:
None

traveler_payment_confirmation

This data flow is used within the Provide Driver and Traveler Services function to indicate the payment for a confirmed trip has been successfully completed or that the total cost can now be deducted from the credit stored on the traveler's traveler card/ payment instrument The request for payment will have been initiated by input from the traveler to a kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

advanced_tolls_confirm
+ advanced_fares_confirm
+ advanced_traveler_charges_confirm
+ credit_identity
+ kiosk_identity
+ stored_credit
+ traveler_total_trip_cost.

Additional Sizing Assumptions:
None

traveler_payment_information

This data flow is used within the Provide Driver and Traveler Services function. It contains details of the components of a trip which a traveler has obtained from the input of data to a kiosk and for which advanced payment is needed following trip confirmation. The traveler's identity and credit identity or stored credit from the traveler card / payment instrument are therefore also included to enable payment to be made. The data flow consists of the following items each of which is defined in its own DDE:

credit_identity

+ kiosk_identity
+ parking_space_details
+ ride_segments
+ stored_credit
+ toll_route_segments.

Additional Sizing Assumptions:
None

traveler_payment_request

This data flow is used to send traveler payment information for a confirmed trip from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function. The payment will have been initiated by input from the traveler to a kiosk or a personal device. The data flow consists the following data items each of which is defined in its own DDE:

credit_identity
+ ride_segments
+ parking_space_details
+ stored_credit
+ toll_route_segments
+ transaction_number
+ traveler_identity.

Additional Sizing Assumptions:
None

traveler_payment_response

This data flow is sent by the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function to indicate the payment for a confirmed trip has been successfully completed. The payment will have been initiated by input from the traveler to a kiosk or a personal device. The data flow consists of the following data items each of which is defined in its own DDE:

transaction_number
+ advanced_tolls_confirm
+ advanced_fares_confirm
+ advanced_traveler_charges_confirm.

Additional Sizing Assumptions:
None

traveler_payments_transactions

This data flow is sent from the Provide Electronic Payment Services function to the Manage Transit function and contains records of all payment transactions for the provision of other (yellow pages) services to travelers. .

Additional Sizing Assumptions:
SIZE=128;

traveler_personal_credit_identity

This data flow is sent from the Provide Electronic Payments Services function to the Provide Driver and Traveler Services function and contains the credit identity of a traveler using a personal device, e.g. PDA. It is obtained as data input from the traveler card / payment instrument terminator and consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit.

Additional Sizing Assumptions:
None

traveler_personal_current_condition_request

This data flow is used within the Provide Driver and Traveler 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 traveler so that the response can be correctly returned. The data flow consists of the following item which is defined in its own DDE:

traveler_identity.

Additional Sizing Assumptions:
None

traveler_personal_current_condition_request_for_archive

This data flow is used within the Provider Driver and Traveler Services function. It is used to provide data to the data archive about requests made for 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:

traveler_personal_current_condition_request.

Additional Sizing Assumptions:
None

traveler_personal_data

This data flow is sent from the Provide Electronic Payments Services function to the Provide Driver and Traveler Services function and contains the credit identity and information about a traveler using a personal device, e.g. PDA. It consists of the following data items each of which is defined in its own DDE:

traveler_personal_credit_identity
+ traveler_personal_information.

Additional Sizing Assumptions:
None

traveler_personal_data_update

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains cost data and updates to traveler information for travelers using on-line personal devices. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_personal_display_update_cost
+ traveler_personal_trip_costs
+ traveler_personal_information_update.

Additional Sizing Assumptions:
None

traveler_personal_display_map_update_request

This data flow is used within the Provide Driver and Traveler Services function and contains the request for the update of the data for the digitized map displays used as the background to the output of traffic, trip and travel information in a traveler's personal device. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ traveler_identity.

Additional Sizing Assumptions:
None

traveler_personal_display_map_update_response

This data flow contains the response to the previous request for the update of the data for the digitized map displays used as the background to the output of traffic, trip and travel information on a traveler's personal device. Payment can be made by reducing the credit and stored credit data items or by using a previously supplied credit identity through the financial institution using the previously supplied credit identity. The success of this transaction will be indicated by the confirmation flag data item. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ display_map_traveler_update_cost
+ stored_credit
+ traveler_identity.

Additional Sizing Assumptions:
None

traveler_personal_display_update_cost

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function. It contains the cost of the update to the digitized map displays used as the background to the output of traffic, trip and travel information on a traveler's personal device. This cost is to be deducted from the credit currently stored on the traveler's traveler card / payment instrument. The data flow includes the following data items each of which is defined in its own DDE:

display_map_traveler_update_cost
+ stored_credit
+ traveler_identity.

Additional Sizing Assumptions:
None

traveler_personal_display_update_payment_request

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains a request that payment be made for an update of the digitized map data used as background to the displays of traffic and travel information on a traveler's personal device. The payment will be made by debiting the credit identity with the cost through the financial institution terminator. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ credit_identity
+ display_map_traveler_update_cost.

Additional Sizing Assumptions:
None

traveler_personal_display_update_payment_response

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function and contains the response to a previous request from the traveler that payment be made for an update of the digitized map data used as background to the displays of traffic and travel information on a traveler's personal device. It consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ credit_identity
+ traveler_identity.

Additional Sizing Assumptions:
None

traveler_personal_emergency_request

This data flow is used to carry data about an emergency situation that applies to a traveler. It contains the following data items each of which is defined in its own DDE:

traveler_identity
+ traveler_location_for_emergencies.

Additional Sizing Assumptions:
None

traveler_personal_emergency_request_for_transit

This data flow is used to carry data about an emergency situation that applies to a traveler on the transit system. It contains the following data items each of which is defined in its own DDE:

transit_vehicle_location.

Additional Sizing Assumptions:
None

traveler_personal_event_information

This data flow contains event information which is to be sent to the traveler interface facility for output using a personal device. .

Additional Sizing Assumptions:
SIZE=16;

traveler_personal_event_information_request

This data flow is used within the Provide Driver and Traveler Services function to transfer requests for event information from the traveler interface facility in a personal device to the yellow pages data collection facility. .

Additional Sizing Assumptions:
SIZE=1;

traveler_personal_event_information_request_for_archive

This data flow is used within the Provide Driver and Traveler Services function to provide data to the archive about the types of event information requested by a traveler using a handheld device. The data flow consists of the following data item which is defined in its own DDE:

traveler_personal_event_information_request.

Additional Sizing Assumptions:
None

traveler_personal_information

This data flow contains information about the traveler using a personal device that may be used by ITS functions to identify travelers (e.g. name, address, etc.) and their traveling preferences (e.g. mode choices historical information, traveler profile data). .

Additional Sizing Assumptions:
SIZE=32;

traveler_personal_information_update

This data flow contains updates concerning a traveler using a personal device to access ITS functions. This information may include updates to the traveler's personal information as they change addresses, update traveling history, or their profile. .

Additional Sizing Assumptions:
SIZE=32;

traveler_personal_map_update_cost

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains the cost of an update to the navigable map database used within the traveler's personal device. This cost is to be deducted from the credit currently stored by the traveler's traveler card / payment instrument and will not be used when the instrument only contains a credit identity. The data flow consists of the following data items each of which is defined in its own DDE:

stored_credit
+ traveler_identity
+ navigable_map_traveler_update_cost.

Additional Sizing Assumptions:
None

traveler_personal_payment_confirmation

This data flow is used within the Provide Driver and Traveler Services function to indicate the payment for a confirmed trip has been successfully completed, or that the total cost can now be deducted from the credit stored on the traveler's traveler card/ payment instrument. The request for payment will have been initiated by input from the traveler to a personal device. The data flow consists of the following data items each of which is defined in its own DDE:

advanced_tolls_confirm
+ advanced_fares_confirm
+ advanced_traveler_charges_confirm
+ credit_identity
+ stored_credit
+ traveler_identity

+ traveler_total_trip_cost.

Additional Sizing Assumptions:
None

traveler_personal_payment_information

This data flow is used within the Provide Driver and Traveler Services function. It contains details of the components of a trip which a traveler has obtained from the input of data to a personal device and for which advanced payment is needed following a trip confirmation. The traveler's identity and credit identity or stored credit from the traveler card / payment instrument are therefore also included to enable payment to be made. The data flow consists of the following items each of which is defined in its own DDE:

credit_identity
+ parking_space_details
+ ride_segments
+ stored_credit
+ toll_route_segments
+ traveler_identity.

Additional Sizing Assumptions:
None

traveler_personal_regular_data

This data store is used within the Provide Driver and Traveler Services function to hold items of data which are regularly used as part of traveler inputs to a personal device. Example of this type of data are the home location of the traveler which may act as the origin for trip requests, traveler identity which is used to identify data requests within the function and the traveler's credit identity which enables payment for advanced charges and other services. .

Additional Sizing Assumptions:
SIZE=256;

traveler_personal_requests_and_confirmation

This data flow is used within the Provide Driver and Traveler Services function and contains requests for traffic, trip planning and travel information or confirmation that the previously requested information is acceptable to the traveler. The data will have been input by the traveler to a personal device. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_personal_current_condition_request
+ traveler_personal_payment_information
+ traveler_personal_trip_confirmation
+ traveler_personal_trip_request
+ evacuation_information_request_for_personal_access.

Additional Sizing Assumptions:
None

traveler_personal_traffic_condition_request

This data flow is used within the Provide Driver and Traveler Services function and contains details of the type of traffic information requested by a traveler from a personal device. It consists of the following items each of which is defined in its own DDE:

traveler_identity

+ traveler_traffic_data_type_request
+ evacuation_information_request.

Additional Sizing Assumptions:
None

traveler_personal_transaction_confirmation

This data flow is used within the Provide Driver and Traveler Services function to confirm any reservations made by the traveler from a personal device. These reservations will be based on information obtained by the traveler from previous data input and output through the device. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ traveler_identity
+ transaction_number
+ yellow_pages_cost
+ yellow_pages_lodging_reservation_confirmation
+ yellow_pages_dining_reservation_confirmation
+ yellow_pages_ticket_purchase_confirmation.

Additional Sizing Assumptions:
None

traveler_personal_transaction_request

This data flow is used within the Provide Driver and Traveler Services function and contains data input by the traveler 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.

Additional Sizing Assumptions:
None

traveler_personal_transaction_request_for_archive

This data flow is used within the Provide Driver and Traveler Services function to provide data to the data archive about requests for reservations 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:

traveler_personal_transaction_request.

Additional Sizing Assumptions:
None

traveler_personal_transit_condition_request

This data flow is used within the Provide Driver and Traveler Services function and contains details of the type of transit information requested by the traveler from a personal device. It consists of the following items each of which is defined in its own DDE:

traveler_identity
+ traveler_transit_data_type_request.

Additional Sizing Assumptions:
None

traveler_personal_travel_services_data

This data flow contains details of other (yellow pages, event, etc.) services which are to be sent to the traveler interface facility for output using a kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_personal_yellow_pages_data
+ traveler_personal_event_information.

Additional Sizing Assumptions:
None

traveler_personal_travel_services_requests

This data flow is used within the Provide Driver and Traveler Services function and contains a request for data on other (yellow pages, events, etc.) services to be provided to a traveler using a personal device. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_personal_yellow_pages_requests
+ traveler_personal_event_information_request.

Additional Sizing Assumptions:
None

traveler_personal_trip_confirmation

This data flow is used within the Provide Driver and Traveler Services function to confirm the trip details provided as the result of a traveler's previous trip request input from a personal device. It contains the following data item which is defined in its own DDE:

paratransit_service_confirmation
+ traveler_identity
+ traveler_rideshare_confirmation.

Additional Sizing Assumptions:
None

traveler_personal_trip_confirmation_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about the confirmation of trip details provided as the result of a traveler's previous trip request input from a personal device. It consists of the following data item which is defined in its own DDE:

traveler_personal_trip_confirmation.

Additional Sizing Assumptions:
None

traveler_personal_trip_confirmation_information

This data flow is used within the Provide Driver and Traveler Services function and contains data confirming various aspects of a traveler's trip. It is sent as a result of a traveler previously requesting confirmation of a trip, the details of which were provided in response to data inputs from the traveler to a personal device. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_personal_payment_confirmation
+ traveler_personal_transaction_confirmation
+ traveler_personal_trip_information
+ evacuation_information_for_personal_access.

Additional Sizing Assumptions:
None

traveler_personal_trip_costs

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function. It contains the cost of a traveler's trip based on a previous trip request and confirmation input by the traveler from a personal device such as a PDA. This cost is to be deducted from the credit currently stored on the traveler's traveler card / payment instrument. The data flow includes the following data items each of which is defined in its own DDE:

stored_credit
+ traveler_identity
+ traveler_total_trip_cost.

Additional Sizing Assumptions:
None

traveler_personal_trip_information

This data flow is used within the Provide Driver and Traveler Services function and contains information about a proposed trip that the traveler has requested earlier from the personal device. It consists of the following data items each of which is defined in its own DDE:

current_conditions
+ [paratransit_personal_schedule | route | rideshare_response]
+ traveler_identity
+ traveler_total_trip_cost.

Additional Sizing Assumptions:
None

traveler_personal_trip_planning_requests

This data flow is used within the Provide Driver and Traveler Services function and contains data that the traveler has provided through a personal device so that a trip can be planned or general travel information 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
+ traveler_identity
+ traveler_personal_trip_request
+ traveler_personal_trip_confirmation
+ traveler_personal_payment_information
+ traveler_personal_transit_condition_request
+ traveler_personal_transaction_request
+ traveler_personal_traffic_condition_request
+ traveler_profile
+ traveler_yellow_pages_information_request
+ traveler_personal_event_information_request
+ traveler_handicap_access_request

+ evacuation_information_request.

Additional Sizing Assumptions:
None

traveler_personal_trip_planning_responses

This data flow is used within the Provide Driver and Traveler Services function and contains the responses to various requests for information and trip planning services previously input by a traveler from a personal device. The data will only cover those services needed to fulfill the traveler's trip or information request. If the previous input from the traveler was a trip confirmation, the data will include either the credit identity or stored credit value originally supplied by the traveler's traveler card / payment instrument. The data flow consists of the following data items each of which is defined in its own DDE:

traffic_data_for_personal_devices
+ transit_services_for_personal_devices
+ transit_deviations_for_personal_devices
+ traveler_identity
+ traveler_personal_trip_information
+ traveler_personal_payment_confirmation
+ traveler_personal_yellow_pages_data
+ traveler_personal_event_information
+ traveler_transaction_confirmation
+ evacuation_information_for_personal_access
+ transportation_system_status_for_personal_devices.

Additional Sizing Assumptions:
None

traveler_personal_trip_request

This data flow is used within the Provide Driver and Traveler Services function and contains data about a traveler's trip request which has been input from a personal device. It consists of the following data items each of which is defined in its own DDE:

trip_request
+ traveler_identity
+ traveler_rideshare_request
+ evacuation_information_request.

Additional Sizing Assumptions:
None

traveler_personal_trip_request_for_archive

This data flow is used within the Provider Driver and Traveler Services function. It is used to provide data to the data archive about requests made for trips via a personal device. It consists of the following data item which is defined in its own DDE:

traveler_personal_trip_request.

Additional Sizing Assumptions:
None

traveler_personal_yellow_pages_data

This data flow contains details of other (yellow pages) services which is to be sent to the traveler interface facility for output using a personal device. The size of the data flow has been set to take account of the need to provide only a small percentage of the total yellow pages data that is available. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ yellow_pages_general_information
+ yellow_pages_specific_information
+ yellow_pages_transaction_information.

Additional Sizing Assumptions:
SIZE=traveler_identity+0.01{yellow_pages_general_information
+yellow_pages_specific_information+yellow_pages_transaction_information);

traveler_personal_yellow_pages_information_request

This data flow is used within the Provide Driver and Traveler Services function and contains a request for data on other (yellow pages) services to be provided to a traveler using a personal device. The traveler identity is used as the means of ensuring that the data produced in response to the request is returned to the correct traveler. 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:

traveler_identity.

Additional Sizing Assumptions:
None

traveler_personal_yellow_pages_information_request_for_archive

This data flow is used within the Provide Driver and Traveler Services function to provide data to the data archive about requests for data on other (yellow pages) services to be provided to a traveler via a personal device. The data flow consists of the following data item which is defined in its own DDE:

traveler_personal_yellow_pages_information_request.

Additional Sizing Assumptions:
None

traveler_personal_yellow_pages_requests

This data flow is used within the Provide Driver and Traveler Services function to transfer requests for other services (yellow pages) information from the traveler interface facility in a 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:

traveler_personal_payment_information
+ traveler_personal_transaction_request
+ traveler_personal_yellow_pages_information_request.

Additional Sizing Assumptions:
None

traveler_profile

This data flow contains a traveler'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 traveler. It consists of the following data items each of which is defined in its own DDE:

traveler_traffic_profile
+traveler_transit_profile.

Additional Sizing Assumptions:
None

traveler_profile_from_vehicle

This data flow contains a traveler'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 traveler. It consists of the following data items each of which is defined in its own DDE:

traveler_traffic_profile
+traveler_transit_profile.

Additional Sizing Assumptions:
None

traveler_regular_data

This data store is used within the Provide Driver and Traveler Services function to hold items of data which are regularly used as part of traveler inputs to a kiosk. Examples of this type of data are location (of the kiosk) which may act as the origin for trip requests and the identity of the kiosk which is used to track data through the processes in the function. .

Additional Sizing Assumptions:
SIZE=128;

traveler_requests_and_confirmation

This data flow is used within the Provide Driver and Traveler Services function and contains requests for traffic, trip planning and travel information or confirmation that the previously requested information is acceptable to the traveler. The data will have been input by the traveler to a kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_current_condition_request
+ traveler_payment_information
+ traveler_trip_confirmation
+ traveler_trip_request
+ evacuation_traveler_information_request_for_rts.

Additional Sizing Assumptions:
None

traveler_rideshare_confirmation

This data flow is used within the Provide Driver and Traveler Services function and contains a traveler's request to confirm a rideshare based trip. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ reservation_status
+ rideshare_selection_number
+ traveler_identity.

Additional Sizing Assumptions:
None

traveler_rideshare_constraints

This data flow is used within the Provide Driver and Traveler Services function to provide details of the constraints for a rideshare being requested as part of a traveler's proposed trip. It consists of the following data items each of which is defined in its own DDE:

constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_special_needs
+ constraint_on_ahs_lanes
+ constraint_on_interstate
+ constraint_on_urban
+ constraint_on_vehicle_type.

Additional Sizing Assumptions:
None

traveler_rideshare_data

This data flow is used within the Provide Driver and Traveler Services function to provide details about a rideshare requested as part of a traveler's proposed trip. It consists of the following data items each of which is defined in its own DDE:

origin
+ destination
+ departure_time
+ desired_arrival_time.

Additional Sizing Assumptions:
None

traveler_rideshare_payments_transactions

This data flow is used within the Provide Payment Electronic Services function and contains records of all payment transactions for traveler ridesharing provision. .

Additional Sizing Assumptions:
SIZE=128;

traveler_rideshare_preferences

This data flow is used within the Provide Driver and Traveler Services function to provide details of the preferences for a rideshare being requested as part of a traveler's proposed trip. It consists of the following data items each of which is defined in its own DDE:

preferred_routes
+ preferred_alternate_routes
+ preferred_route_segments
+ preferred_ridesharing_options.

Additional Sizing Assumptions:
None

traveler_rideshare_request

This data flow is used within the Provide Driver and Traveler Services function to request a rideshare as part of a traveler's proposed trip request. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ traveler_rideshare_data
+ traveler_rideshare_preferences
+ traveler_rideshare_constraints.

Additional Sizing Assumptions:
None

traveler_rideshare_request_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about the requests for rideshare as part of a traveler's proposed trip request. It consists of the following data item which is defined in its own DDE:

traveler_rideshare_request.

Additional Sizing Assumptions:
None

traveler_roadside_credit_identity

This data flow is sent from the Provide Electronic Payments Services function to the Provide Driver and Traveler Services function and contains the credit identity of a traveler using a roadside facility such as a kiosk. It is obtained as data input from the traveler card / payment instrument terminator and consists of the following data item which is defined in its own DDE:

credit_identity.

Additional Sizing Assumptions:
None

traveler_roadside_credit_identity_for_transit

This data flow is sent from the Provide Electronic Payments Services function to the Manage Transit function and contains the credit identity of a traveler at the roadside, i.e. a transit stop. It is obtained as data input from the traveler card / payment instrument terminator and consists of the following data item which is defined in its own DDE:

credit_identity.

Additional Sizing Assumptions:
None

traveler_roadside_data

This data flow is sent from the Provide Electronic Payments Services function to the Provide Driver and Traveler Services function and contains cost data and information about travelers using on-line kiosk devices. It consists of the following data item which is defined in its own DDE:

traveler_roadside_credit_identity
+ traveler_roadside_personal_information.

Additional Sizing Assumptions:
None

traveler_roadside_data_update

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function. It contains cost data and updates to traveler information for travelers using a kiosk device. The data flow includes the following data items each of which is defined in its own DDE:

traveler_roadside_trip_costs
+ traveler_roadside_personal_information_update.

Additional Sizing Assumptions:
None

traveler_roadside_fare

This data flow is used within the Manage Transit function and contains details of the transit service that the traveler at the roadside, i.e. at a transit stop, is going to use and the required fare for using this service. It consists of the following data items each of which is defined in its own DDE:

transit_fare
+ traveler_roadside_tag_identity.

Additional Sizing Assumptions:
None

traveler_roadside_image

This data flow is sent from the Manage Transit function to the Provide Electronic Payment Services function. It contains an JPEG compressed image of the traveler who has violated the transit fare collection process at the roadside, i.e. at a transit stop. The data will be used in subsequent transit fare violation processing. .

Additional Sizing Assumptions:
SIZE=JPEG{ft-traveler_roadside_image};

traveler_roadside_information

This data flow contains the traveler's destination for the ride that is being requested. The destination will be provided as a character string, from which the identity of the transit route segment that is at that point can be determined. .

Additional Sizing Assumptions:
SIZE=40;

traveler_roadside_payment_response

This data flow is used within the Manage Transit function to provide an indication for output to the traveler at the roadside, i.e. a transit stop, that the previously submitted fare payment has been accepted or not. .

Additional Sizing Assumptions:
SIZE=1;

traveler_roadside_personal_information

This data flow contains information about the traveler using a kiosk device that may be used by ITS functions to identify travelers (e.g. name, address, etc.) and their traveling preferences (e.g. mode choices historical information, traveler profile data). .

Additional Sizing Assumptions:

SIZE=32;

traveler_roadside_personal_information_update

This data flow contains updates concerning a traveler using a kiosk device to access ITS functions. This information may include updates to the traveler's personal information as they change addresses, update traveling history, or their profile. .

Additional Sizing Assumptions:
SIZE=32;

traveler_roadside_processed_fare_data

This data flow is used within the Manage Transit function and contains details of the transit service that the traveler at the roadside, i.e. a transit stop, is going to use and the required fare for using this service. It consists of the following data items each of which is defined in its own DDE:

transit_fare
+ transit_route_number
+ transit_route_segment_number
+ transit_route_use_time
+ traveler_category.

Additional Sizing Assumptions:
None

traveler_roadside_ride

This data flow is used within the Manage Transit function and contains details of the transit service that the traveler at the roadside, i.e. at a transit stop, is going to use so that the fare for this service can be calculated. It consists of the following data items each of which is defined in its own DDE:

traveler_journey_end
+ traveler_journey_start
+ transit_route_use_time
+ traveler_category
+ traveler_roadside_tag_identity.

Additional Sizing Assumptions:
None

traveler_roadside_ride_data

This data flow is used within the Manage Transit function and contains details of the transit service that the traveler at the roadside, i.e. a transit stop, is going to use. It consists of the following data items each of which is defined in its own DDE:

traveler_journey_end
+ traveler_journey_start
+ transit_route_use_time
+ traveler_category
+ traveler_roadside_tag_identity.

Additional Sizing Assumptions:
None

traveler_roadside_tag_data

This data flow is used within the Provide Electronic Payment Services function and contains the data that has been provided by the traveler card / payment instrument being used by the traveler at the roadside. This may be either a credit identity, or the value of the credit currently stored by the traveler card / payment instrument, to which transit fares may be charged. The data flow consists of the following items each of which is defined in its own DDE:

credit_identity
+ stored_credit.

Additional Sizing Assumptions:
None

traveler_roadside_tag_identity

This data is used within the Manage Transit function. It provides the identity of a traveler, at the roadside, i.e. at a transit stop, for fare payment. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ traveler_identity.

Additional Sizing Assumptions:
None

traveler_roadside_trip_costs

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function. It contains the cost of a traveler's trip based on a previous trip request and confirmation input by the traveler from a roadside unit such as a kiosk. This cost is to be deducted from the credit currently stored on the traveler's traveler card / payment instrument. The data flow includes the following data items each of which is defined in its own DDE:

kiosk_identity
+ stored_credit
+ traveler_total_trip_cost.

Additional Sizing Assumptions:
None

traveler_route

This data flow is used within the Provide Driver and Traveler Services function and is a special form of 'route' for traveler guidance only. It contains a subset of the data items included in the 'route' data flow to meet the requirements of on-line traveler guidance as opposed to the more general requirements for a route need as part of a trip planning activity. The data flow consists of the following data items each of which is defined in its own DDE:

route_segment_number{route_segment_description
+ route_segment_end_point
+ route_segment_estimated_travel_time
+ route_segment_mode
+ route_segment_report_position_points
+ route_segment_start_point}.

Additional Sizing Assumptions:
SIZE=NUM_SEGS{route_segment_description+route_segment_end_point+route_segment_start_point
+route_segment_mode+route_segment_estimated_travel_time
+route_segment_report_position_points};

traveler_route_accepted

This data flow is used within the Provide Driver and Traveler Services function and contains the acceptance by the traveler of the previously provided route for on-line infrastructure based guidance. Acceptance must be provided before guidance can begin. The data flow consists of the following data item which is defined in its own DDE:

route_identity.

Additional Sizing Assumptions:
None

traveler_route_accepted_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about acceptance by the traveler 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:

traveler_route_accepted.

Additional Sizing Assumptions:
None

traveler_route_request

This data flow is used within the Provide Driver and Traveler Services function and contains data from which the route requested by a traveler can be determined, or that the previously provided data has been accepted. It consists of the following data items each of which is defined in its own DDE:

origin
+ destination
+ desired_arrival_time
+ modes
+ preferred_routes
+ preferred_alternate_routes
+ preferred_ridesharing_options
+ preferred_route_segments
+ preferred_transit_options
+ constraint_on_acceptable_travel_time
+ constraint_on_number_of_mode_changes
+ constraint_on_number_of_transfers
+ constraint_on_eta_change
+ constraint_on_special_needs
+ traveler_route_accepted
+ traveler_identity
+ traveler_location.

Additional Sizing Assumptions:
None

traveler_route_request_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about data from which the route requested by a traveler 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:

traveler_route_request.

Additional Sizing Assumptions:
None

traveler_secure_area_audio

This data flow is used within the Manage Emergency Services function and contains the direct audio output of surveillance equipment in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ surveillance_device_type_identity
+ secure_audio.

Additional Sizing Assumptions:
None

traveler_secure_area_audio_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the direct audio output of surveillance equipment in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ surveillance_device_type_identity
+ secure_audio.

Additional Sizing Assumptions:
None

traveler_secure_area_broadcast_message

This data flow contains textual or audio information for travelers in secure areas such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. The information will be sent out as part of the response to an emergency or incident being detected within the network. .

Additional Sizing Assumptions:
SIZE=48;

traveler_secure_area_field_proc_parameters

This data flow is used within the Manage Emergency Services function and contains the information required to control the sensor and surveillance data processing occurring in the field. This data is collected from secure areas frequented by travelers (transit stops, rest areas, park and ride lots, modal interchange facilities, etc.). The data flow consists of the following data items each of which is defined in its own DDE:

traveler_surveillance_field_proc_parameters
+ traveler_sensor_field_proc_parameters.

Additional Sizing Assumptions:
None

traveler_secure_area_images

This data flow is used within the Manage Emergency Services function and contains the direct high-resolution digitized image output of surveillance equipment in secure areas in areas frequented by travelers, such as transit

stops, rest areas, park and ride lots, modal interchange facilities, etc. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ surveillance_device_type_identity
+ secure_video_image.

Additional Sizing Assumptions:
None

traveler_secure_area_images_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the direct high-resolution digitized image output of surveillance equipment in secure areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ surveillance_device_type_identity
+ secure_video_image.

Additional Sizing Assumptions:
None

traveler_secure_area_sensor_threat_data

This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from sensor systems in secure areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. This data is collected from threat sensors, object detection sensors, and intrusion and motion sensors, and could include an alarm indicating that a threshold has been met or a data pattern recognized. The data flow consists of the following data items each of which is defined in its own DDE:

sensor_threat_data
+ location_identity.

Additional Sizing Assumptions:
None

traveler_secure_area_surveillance_control

This data flow is used within the Manage Emergency Services function and contains control parameters for closed circuit television (cctv) and audio systems located in a secure area frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_video_control
+ secure_area_audio_control.

Additional Sizing Assumptions:
None

traveler_secure_area_surveillance_status

This data flow is used within the Manage Emergency Services function and contains status information from closed circuit television (cctv) and audio systems located in a secure area frequented by travelers, such as transit stops, rest

areas, park and ride lots, modal interchange facilities, etc. This data flow contains an indication that a fault has been found with the collection of video or audio data by the device. The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_video_status
+ secure_area_audio_status.

Additional Sizing Assumptions:
None

traveler_secure_area_surveillance_threat_data

This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from surveillance systems in secure areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. This data could include an alarm indicating that a threshold has been met or an audio or video pattern recognized. The data flow consists of the following data items each of which is defined in its own DDE:

surveillance_threat_data
+ location_identity.

Additional Sizing Assumptions:
None

traveler_secure_area_threat_data

This data flow contains the threat data including threats detected, threshold alarms, and verified threats in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. It consists of the following data items each of which is defined in its own DDE:

traveler_secure_area_sensor_threat_data
+ traveler_secure_area_surveillance_threat_data.

Additional Sizing Assumptions:
None

traveler_sensor_control

This data flow contains control parameters for sensors located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. It consists of the following data items each of which is defined in its own DDE:

traveler_threat_sensor_control
+ traveler_object_detection_sensor_control
+ traveler_intrusion_motion_sensor_control.

Additional Sizing Assumptions:
None

traveler_sensor_data

This data flow contains the direct output of sensors as well as the processed output of sensors located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. It consists of the following data items each of which is defined in its own DDE:

traveler_threat_sensor_data
+ field_processed_traveler_threat_sensor_data

+ traveler_object_detection_sensor_data
+ field_processed_traveler_object_detection_sensor_data
+ traveler_intrusion_motion_sensor_data
+ field_processed_traveler_intrusion_motion_sensor_data.

Additional Sizing Assumptions:
None

traveler_sensor_field_proc_parameters

This data flow contains parameters to define how the sensor data collected from secure areas (frequented by travelers, such as transit stops, rest areas, park and ride lots, etc.) is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing in the field and include threat sensors, intrusion and motion detection sensors, and object detection sensors. .

Additional Sizing Assumptions:
SIZE=32;

traveler_sensor_status

This data flow contains the status of sensors located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. This status includes of the configuration of the device and an indication of any device faults. It consists of the following data items each of which is defined in its own DDE:

traveler_threat_sensor_status
+ traveler_object_detection_sensor_status
+ traveler_intrusion_motion_sensor_status.

Additional Sizing Assumptions:
None

traveler_surveillance

This data flow is used within the Manage Emergency Services function and contains the direct video and audio output of surveillance equipment as well as the processed output of that equipment in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_secure_area_images
+ field_processed_traveler_secure_area_images
+ traveler_secure_area_audio
+ field_processed_traveler_secure_area_audio.

Additional Sizing Assumptions:
None

traveler_surveillance_field_proc_parameters

This data flow contains parameters to define how the surveillance data collected from secure areas (frequented by travelers, such as transit stops, rest areas, park and ride lots, etc.) is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing in the field. .

Additional Sizing Assumptions:
SIZE=32;

traveler_threat_sensor_control

This data flow provides control commands for threat sensors (e.g., thermal, acoustic, radiological, chemical) located in areas frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, etc.). It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ threat_sensor_control_data}.

Additional Sizing Assumptions:
None

traveler_threat_sensor_data

This data flow contains actual sensor readings collected from threat sensors (e.g., thermal, acoustic, radiological, chemical) located in areas typically frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ threat_sensor_data_collected}.

Additional Sizing Assumptions:
None

traveler_threat_sensor_data_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from threat sensors (e.g., thermal, acoustic, radiological, chemical) located in areas frequented by travelers, such as transit stops, rest areas, park and ride lots, modal interchange facilities, etc. This data is intended to be processed further in the field prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

station_id
+ sensor_identity
+ threat_sensor_data_collected.

Additional Sizing Assumptions:
None

traveler_threat_sensor_status

This data flow is used within the Manage Emergency Services function to report the status of a threat sensor (e.g., thermal, acoustic, radiological, chemical) located in areas frequented by travelers (i.e., transit stops, rest areas, park and ride lots, modal interchange facilities, etc.). By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ threat_sensor_fault_data}.

Additional Sizing Assumptions:
None

traveler_to_m_and_c

This DFD flow represents the data flows from Provide Driver and Traveler Services to Manage Maintenance and Construction. The DFD flow consists of the following data flows each of which is defined in its own DDE:

env_probe_info_from_isp
+ traffic_probe_info_from_info_provider
+ vehicle_location_for_mcv.

Additional Sizing Assumptions:
None

traveler_total_trip_cost

This data flow contains the total cost of a traveler's trip. This will be a trip that has been previously confirmed by the traveler from either a personal device or a kiosk, and for which where necessary, reservations have been made. The cost is stored to give a sensible value bearing in mind that it could include the cost of number of services, not least of which may be multimodal transport, such as those provided by airlines. It will be deducted from the credit currently stored on the traveler's traveler card / payment instrument. .

Additional Sizing Assumptions:
SIZE=3;

traveler_traffic_condition_request

This data flow is used within the Provide Driver and Traveler Services function and contains details of the type of traffic information requested by a traveler from a kiosk. It consists of the following items each of which is defined in its own DDE:

kiosk_identity
+ traveler_traffic_data_type_request
+ evacuation_information_request.

Additional Sizing Assumptions:
None

traveler_traffic_data_type_request

This data flow contains details of the type of traffic data that the traveler 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. .

Additional Sizing Assumptions:
SIZE=3;

traveler_traffic_information_advisory_data

This data item is used within the Provide Driver and Traveler Services function to send data about traffic that was requested as advisory information by drivers or travelers (including users of the transit system) from within a vehicle. The traffic data may be used to provide input for both local and wide area broadcast information output. The data is being sent from the process that manages the store following its update with new data that has been obtained from the Manage Traffic function. This data item contains the following data item defined in its own DDE:

traveler_traffic_information_data.

Additional Sizing Assumptions:

None

traveler_traffic_information_broadcast_data

This data item is used within the Provide Driver and Traveler Services function to send data about traffic that was requested as broadcast information by drivers or travelers (including users of the transit system) from within a vehicle. The traffic data may be used to provide input for both local and wide area broadcast information output. The data is being sent from the process that manages the store following its update with new data that has been obtained from the Manage Traffic function. This data item contains the following data item defined in its own DDE:

traveler_traffic_information_data.

Additional Sizing Assumptions:
None

traveler_traffic_information_data

This data store is used within the Provide Driver and Traveler Services function to hold data about traffic that may be requested as advisory information by drivers or travelers (including users of the transit system) from within a vehicle. The traffic data may be used to provide input for both local and wide area broadcast information output. The data is exchanged between the store and a process for amalgamation with new data that has been obtained from the Manage Traffic function. The data store contains the following data items each of which is defined in its own DDE:

planned_events
+ prediction_data
+ traffic_data_for_advisory_output.

Additional Sizing Assumptions:
None

traveler_traffic_preference_setting

This data flow contains information about the travelers 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}.

Additional Sizing Assumptions:
None

traveler_traffic_profile

This data flow contains a traveler'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 traveler. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ traveler_contact_setting
+ traveler_device_setting
+ traveler_traffic_preference_setting.

Additional Sizing Assumptions:
None

traveler_transaction_buffer

This data store is used within the Manage Traffic function and contains batched records of on-vehicle fare transactions. These records are transmitted from the transit vehicle to the infrastructure for 'back-end' processing at a convenient time. The store contains approximately one operating shift's volume of transaction_records and consists of the following data items each of which is defined in its own DDE:

list_size{traveler_transaction_record}.

Additional Sizing Assumptions:
SIZE=2{TRANSIT_USERS/TRANSIT_VEHS}{traveler_transaction_record};

traveler_transaction_confirmation

This data flow is used within the Provide Driver and Traveler Services function to confirm any reservations made by the traveler from a kiosk. These reservations will be based on information obtained by the traveler from previous data input and output through the kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ kiosk_identity
+ transaction_number
+ yellow_pages_cost
+ yellow_pages_lodging_reservation_confirmation
+ yellow_pages_dining_reservation_confirmation
+ yellow_pages_ticket_purchase_confirmation.

Additional Sizing Assumptions:
None

traveler_transaction_record

This data flow is used to record a request for payment processing of a transit fare transaction from on-board a transit vehicle. This flow provides for batch (low value/ high usage) fare transaction (e.g., city bus routes) processing. The flow consists of the following data items each of which is defined in its own DDE:

credit_identity
+ transit_fare
+ transit_route_number
+ transit_route_segment_number
+ transit_route_use_time
+ traveler_category
+ traveler_identity.

Additional Sizing Assumptions:
None

traveler_transaction_request

This data flow is used within the Provide Driver and Traveler Services function and contains data input by the traveler at a kiosk to make reservations for various other (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.

Additional Sizing Assumptions:
None

traveler_transaction_request_for_archive

This data flow is used within the Provide Driver and Traveler Services function to provide data to the data archive about requests for reservations 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:

traveler_transaction_request.

Additional Sizing Assumptions:
None

traveler_transit_condition_request

This data flow is used within the Provide Driver and Traveler Services function and contains details of the type of transit information requested by the traveler from a kiosk. It consists of the following items each of which is defined in its own DDE:

kiosk_identity
+ traveler_transit_data_type_request.

Additional Sizing Assumptions:
None

traveler_transit_data_type_request

This data flow contains details of the type of transit data that the traveler has requested for output to a kiosk or personal device. This data is used to set up the actual transit 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 transit data, routes or schedules to be used. .

Additional Sizing Assumptions:
SIZE=2;

traveler_transit_information

This data flow is sent from Manage Transit to the Manage Transit Vehicle function and contains the contents of the store of transit data used to provide input for both local and wide area broadcast information output concerning route and schedule deviations and ETA. The data is sent from a process in the Provide Driver and Traveler Services function that manages the store following its update with new data that has been obtained from the Manage Transit function. The data flow consists of the following data item which is defined in its own DDE:

traveler_transit_information_data.

Additional Sizing Assumptions:
None

traveler_transit_information_advisory_data

This data flow is used within the Provide Driver and Traveler Services function and contains the contents of the store of transit data used to provide input for both local and wide area broadcast information output. The data is used to provide transit advisory messages. The data is being sent from a process that manages the store following

its update with new data that has been obtained from the Manage Transit function. The data flow consists of the following data item which is defined in its own DDE:

traveler_transit_information_data.

Additional Sizing Assumptions:
None

traveler_transit_information_broadcast_data

This data flow is used within the Provide Driver and Traveler Services function and contains the contents of the store of transit data used to provide input for both local and wide area broadcast information output. The data is being sent from a process that manages the store following its update with new data that has been obtained from the Manage Transit function. The data flow consists of the following data item which is defined in its own DDE:

traveler_transit_information_data.

Additional Sizing Assumptions:
None

traveler_transit_information_data

This store is used within the Provide Driver and Traveler Services function to hold data about transit that may be requested as advisory information by drivers or travelers (including users of the transit system) from within a vehicle. The transit data may be used to provide input for both local and wide area broadcast information output. The data is exchanged between the store and a process for amalgamation with new data that has been obtained from the Manage Transit function. The data store contains the following data items each of which is defined in its own DDE:

transit_services_for_advisory_data
+ transit_running_data_for_advisory_output.

Additional Sizing Assumptions:
None

traveler_transit_information_for_transit_advisories

This data flow is used within the Provide Driver and Traveler Services function and contains the contents of the store of transit data used to provide input for both local and wide area broadcast information output. The data will be used to provide advisory information on the transit vehicle. The data is being sent from a process that manages the store following its update with new data that has been obtained from the Manage Transit function. The data flow consists of the following data item which is defined in its own DDE:

traveler_transit_information_data.

Additional Sizing Assumptions:
None

traveler_transit_preference_setting

This data flow contains information about the travelers preferences for receipt of transit 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}.

Additional Sizing Assumptions:
None

traveler_transit_profile

This data flow contains a traveler's personal profile for obtaining transit 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 traveler. It consists of the following data items each of which is defined in its own DDE:

traveler_identity
+ traveler_contact_setting
+ traveler_device_setting
+ traveler_transit_preference_setting.

Additional Sizing Assumptions:
None

traveler_travel_services_data

This data flow is used within the Provide Driver and Traveler Services function and contains details of other (yellow pages, event, etc.) services which are to be sent to the traveler interface facility for output using a kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_yellow_pages_data
+ traveler_event_information.

Additional Sizing Assumptions:
None

traveler_travel_services_requests

This data flow is used within the Provide Driver and Traveler Services function to transfer requests for yellow pages and event information from the traveler kiosk interface facility to the yellow pages and event data collection facility. It consists of the following data items each of which is defined in its own DDE:

traveler_yellow_pages_requests
+ traveler_event_information_request.

Additional Sizing Assumptions:
None

traveler_travel_services_requests_for_archive

This data flow is used within the Provide Driver and Traveler Services function to provide data to the data archive about requests for reservations or data to be returned to the traveler for various other (yellow pages or event) services via a personal device, kiosk, or 511 traveler information system. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_yellow_pages_requests_for_archive
+ event_information_requests_for_archive
+ traveler_511_requests_for_archive.

Additional Sizing Assumptions:
None

traveler_trip_and_cond_requests_for_archive

This data flow is used within the Provider Driver and Traveler Services function. It is used to provide data to the data archive about requests made for trips 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:

traveler_personal_current_condition_request_for_archive
+ traveler_current_condition_request_for_archive
+ traveler_personal_trip_request_for_archive
+ traveler_trip_request_for_archive.

Additional Sizing Assumptions:
None

traveler_trip_confirmation

This data flow is used within the Provide Driver and Traveler Services function to confirm the trip details provided as the result of a traveler's previous trip request input from a kiosk. It contains the following data item which is defined in its own DDE:

paratransit_service_confirmation
+ traveler_identity
+ traveler_rideshare_confirmation.

Additional Sizing Assumptions:
None

traveler_trip_confirmation_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about the confirmation of trip details provided as the result of a traveler's previous trip request input from a kiosk. It consists of the following data item which is defined in its own DDE:

traveler_trip_confirmation.

Additional Sizing Assumptions:
None

traveler_trip_confirmation_information

This data flow is used within the Provide Driver and Traveler Services function and contains data confirming various aspects of a traveler's trip. It is sent as a result of a traveler previously requesting confirmation of a trip, the details of which were provided in response to data inputs from the traveler to the kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_payment_confirmation
+ traveler_transaction_confirmation
+ traveler_trip_information
+ evacuation_traveler_information_for_rts.

Additional Sizing Assumptions:
None

traveler_trip_information

This data flow is used within the Provide Driver and Traveler Services function and contains information about a proposed trip that the traveler has requested earlier from the kiosk. It consists of the following data items each of which is defined in its own DDE:

current_conditions
+ kiosk_identity
+ paratransit_personal_schedule
+ rideshare_response
+ route
+ route_cost.

Additional Sizing Assumptions:
SIZE=current_conditions+kiosk_identity+paratransit_personal_schedule+rideshare_response
+4{route+route_cost};

traveler_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 transit fares as part of travelers' confirmed trips. .

Additional Sizing Assumptions:
SIZE=128;

traveler_trip_planning_requests

This data flow is used within the Provide Driver and Traveler Services function and contains data that the traveler has provided through a kiosk so that a trip can be planned or general travel information provided. It consists of the following data items each of which is defined in its own DDE, all of which may not be present in any one data flow:

kiosk_identity
+ traveler_trip_request
+ transit_vehicle_deviation_request
+ traveler_trip_confirmation
+ traveler_payment_information
+ traveler_event_information_request
+ traveler_yellow_pages_information_request
+ traveler_transaction_request
+ traveler_traffic_condition_request
+ traveler_transit_condition_request
+ evacuation_information_request.

Additional Sizing Assumptions:
None

traveler_trip_planning_responses

This data flow is used within the Provide Driver and Traveler Services function and contains the responses to various requests for information and trip planning services previously input by a traveler from a kiosk. The data will only cover those services needed to fulfill the traveler's trip or information request. If the previous input from the traveler was a trip confirmation, the data will include either the credit identity or stored credit value originally supplied by the traveler's payment instrument. The data flow consists of the following data items each of which is defined in its own DDE:

kiosk_identity
+ transit_services_for_kiosks
+ transit_vehicle_schedule_deviations
+ traffic_data_for_kiosks
+ traveler_trip_information

+ traveler_payment_confirmation
+ traveler_yellow_pages_data
+ traveler_event_information
+ traveler_transaction_confirmation
+ evacuation_traveler_information_for_rts
+ transportation_system_status_for_kiosks.

Additional Sizing Assumptions:
None

traveler_trip_request

This data flow is used within the Provide Driver and Traveler Services function and contains data about a traveler's trip request which has been input from a kiosk. It consists of the following data items each of which is defined in its own DDE:

trip_request
+ traveler_identity
+ traveler_rideshare_request.

Additional Sizing Assumptions:
None

traveler_trip_request_for_archive

This data flow is used within the Provider Driver and Traveler Services function. It is used to provide data to the data archive about requests made for trips via a kiosk. It consists of the following data item which is defined in its own DDE:

traveler_trip_request.

Additional Sizing Assumptions:
None

traveler_vehicle_fare

This data flow is used within the Manage Transit function and contains details of the transit service that the traveler on a transit vehicle is going to use and the required fare for using this service. It consists of the following data items each of which is defined in its own DDE:

transit_fare
+ traveler_vehicle_tag_identity.

Additional Sizing Assumptions:
None

traveler_vehicle_image

This data flow is sent from the Manage Transit function to the Provide Electronic Payment Services function. It contains a compressed image of the traveler who has violated the transit fare collection process on-board a transit vehicle. The data will be used in subsequent transit fare violation processing. .

Additional Sizing Assumptions:
SIZE=JPEG{ft-traveler_vehicle_image};

traveler_vehicle_information

This data flow is used within the Manage Transit function and contains information about other services requested by a traveler on-board a transit vehicle as well as the location of the transit vehicle they are currently riding. These other services include what are called 'yellow pages' services, e.g. hotels, restaurants, theaters, etc. This item consists of the following element which is defined in its own DDE:

transit_vehicle_location.

Additional Sizing Assumptions:
None

traveler_vehicle_payment_response

This data flow is used within the Manage Transit function to provide an indication for output to the traveler on-board a transit vehicle that the previously submitted fare payment has been accepted or not. .

Additional Sizing Assumptions:
SIZE=1;

traveler_vehicle_processed_fare_data

This data flow is used within the Manage Transit function and contains details of the transit service that the traveler on-board a transit vehicle is going to use and the required fare for using this service. It consists of the following data items each of which is defined in its own DDE:

transit_fare
+ traveler_vehicle_tag_identity.

Additional Sizing Assumptions:
None

traveler_vehicle_ride

This data flow is used within the Manage Transit function and contains details of the transit service that the traveler on a transit vehicle is going to use so that the fare for this service can be calculated. It consists of the following data items each of which is defined in its own DDE:

traveler_journey_end
+ traveler_journey_start
+ transit_route_use_time
+ traveler_category
+ traveler_vehicle_tag_identity.

Additional Sizing Assumptions:
None

traveler_vehicle_ride_data

This data flow is used within the Manage Transit function. It contains details of the transit service that the traveler on a transit vehicle is going to use. The data flow consists of the following data items each of which is defined in its own DDE:

transit_route_use_time
+ traveler_category
+ traveler_journey_end
+ traveler_journey_start
+ traveler_vehicle_tag_identity.

Additional Sizing Assumptions:
None

traveler_vehicle_tag_data

This data flow is used within the Provide Electronic Payment Services function and contains the data that has been provided by the traveler card / payment instrument being used by the traveler on-board a transit vehicle. This may be either a credit identity, or the value of the credit currently stored by the traveler card / payment instrument, to which transit fares may be charged. The data flow consists of the following items each of which is defined in its own DDE:

credit_identity
+ stored_credit.

Additional Sizing Assumptions:
None

traveler_vehicle_tag_identity

This data is used within the Manage Transit function and provides the identity of a traveler on a transit vehicle for fare payment. It consists of the following data items each of which is defined in its own DDE:

credit_identity
+ stored_credit
+ traveler_identity.

Additional Sizing Assumptions:
None

traveler_weather_info_request

This data flow contains a request for weather information to be output to a traveler. .

Additional Sizing Assumptions:
SIZE=1;

traveler_yellow_pages_data

This data flow is used within the Provide Driver and Traveler Services function and contains details of other (yellow pages) services which is to be sent to the traveler 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.

Additional Sizing Assumptions:
SIZE=kiosk_identity+0.01{yellow_pages_general_information
+yellow_pages_specific_information+yellow_pages_transaction_information);

traveler_yellow_pages_information_request

This data flow is used within the Provide Driver and Traveler Services function and contains a request for data on other (yellow pages and non-motorized transportation) services to be provided to a traveler 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.

Additional Sizing Assumptions:
None

traveler_yellow_pages_information_request_for_archive

This data flow is used within the Provide Driver and Traveler Services function to provide data to the data archive about requests for data on other (yellow pages) services to be provided to a traveler via the identified kiosk. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_yellow_pages_information_request.

Additional Sizing Assumptions:
None

traveler_yellow_pages_requests

This data flow is used within the Provide Driver and Traveler Services function to transfer requests for yellow pages information from the traveler 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:

traveler_payment_information
+ traveler_transaction_request
+ traveler_yellow_pages_information_request.

Additional Sizing Assumptions:
None

traveler_yellow_pages_requests_for_archive

This data flow is used within the Provide Driver and Traveler Services function to provide data to the data archive about requests for reservations or data to be returned to the traveler for various other (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:

traveler_personal_transaction_request_for_archive
+ traveler_transaction_request_for_archive
+ traveler_personal_yellow_pages_information_request_for_archive
+ traveler_yellow_pages_information_request_for_archive.

Additional Sizing Assumptions:
None

trip_information

This data store is maintained within the Provide Driver and Traveler Services function and contains information about travelers' trip requests for use if and when they are confirmed. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{current_conditions
    + evacuation_trip_planning_data
    + multimodal_services_details

+ paratransit_personal_schedule
+ rideshare_response
+ route
+ route_cost
+ traveler_identity
+ trip_request}.

Additional Sizing Assumptions:
None

trip_planning_data

This data flow is used within the Provide Driver and Traveler Services function to transfer data between the Provide Guidance and Trip Planning Services facility and the Manage Trip Planning and Ridesharing facility, as well as provide route information to the data archive. It consists of the following data items each of which is defined in its own DDE:

paratransit_route_request
+ paratransit_route_confirm
+ supplied_route
+ traveler_route_request_for_archive
+ traveler_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.

Additional Sizing Assumptions:
None

trip_planning_parameters

This data store is used within the Provide Driver and Traveler Services function and contains parameters used for trip planning. .

Additional Sizing Assumptions:
SIZE=32;

trip_request

This data flow is used within the Provide Driver and Traveler Services function as a means of specifying the parameters needed for a trip or route to be provided to a driver or traveler. It consists of the following data items each of which is defined in its own DDE:

origin
+ destination
+ departure_time
+ desired_arrival_time
+ preferences
+ constraints.

Additional Sizing Assumptions:
None

trip_request_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about the parameters needed for a trip or route to be provided to a driver or traveler. It consists of the following data items each of which is defined in its own DDE:

origin
+ destination
+ departure_time
+ desired_arrival_time
+ preferences
+ constraints.

Additional Sizing Assumptions:
None

trip_request_for_archive_attributes

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data attribute information to the data archive about the parameters needed for a trip or route to be provided to a driver or traveler. This data flow consists of the following items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:
None

trmc_identity

This data item is used within the Manage Transit function and defines the logical identifier of an interfacing peer Transit Management Center (TRMC) to share transit data and system status. Other centers may be on-line to coordinate transit operations to promote mobility and coordination. Security safeguards are employed to ensure that unauthorized entities cannot masquerade as a valid TRMC. .

Additional Sizing Assumptions:
SIZE=4;

trmc_list

This data flow is used within the Manage Transit function and contains a list of Transit Management Centers (TRMC's) from which the accompanying transit data has been obtained for use by the local TRMC. The data flow consists of the following data items each of which is defined by its own DDE:

list_size
+ list_size{trmc_identity}.

Additional Sizing Assumptions:
None

tro-disaster_response_plan_coordination

This data flow is used to coordinate disaster response and recovery plans with rail operations. It contains information regarding the nature of the disaster, and the preplanned response plan for the rail. Given this information, the rail can than update and provide a plan that it will use that is appropriate for the given disaster. The data flow consists of the following data items which are defined in their own DDE:

emergency_input_for_disaster
+ evacuation_status_for_disaster_response
+ rail_preplanned_disaster_response_plan
+ disaster_transportation_system_status.

Additional Sizing Assumptions:
None

tro-equipment_status

This data flow contains information about the status of the wayside equipment and the intelligent intersection controller. It is used to pass information to rail operations about the overall health and status of the HRI. .

Additional Sizing Assumptions:
SIZE=128;

tro-evacuation_information_for_rail

This flow contains information regarding the evacuation for rail operations. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule.

Additional Sizing Assumptions:
None

tro-evacuation_plan_coordination

This data flow is used to coordinate evacuation plans with rail operations. It contains information regarding the nature of the disaster or incident that has required an evacuation, and the preplanned evacuation plan for rail. Given this information, rail can than update and provide a plan that it will use to support the evacuation. The data flow consists of the following data items which are defined in their own DDE:

emergency_evacuation_data
+ rail_preplanned_evacuation_plan
+ evacuation_status_report
+ evacuation_transportation_system_status.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1024;

tro-incident_information

This data flow is sent from the Manage Emergency Services function to rail operations and contains information that has been requested about incidents. It consists of the following items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:
None

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). .

Additional Sizing Assumptions:
SIZE=1024;

tro-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 such as the organization name, address, phone number, mobile phone number or fax number. .

Additional Sizing Assumptions:
SIZE=48;

tro-m_and_c_work_plans_for_rail

This data flow is sent from the Manage Maintenance and Construction function to the Rail Operations. It contains information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. .

Additional Sizing Assumptions:
SIZE=16;

tro-railroad_schedule_feedback

This data flow is sent from the Manage Maintenance and Construction function to the Rail Operations. It contains comments and suggested changes to proposed rail schedules for train and rail maintenance activities. .

Additional Sizing Assumptions:
SIZE=16;

tro-road_weather_info

This data flow contains environmental and road weather information that has been formatted for distribution to the Rail Operations terminator. The data may be filtered or aggregated prior to this formatting. The data that is used to create the data flow consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

tro-threat_info

This data flow is sent from the Manage Emergency Services function to the Rail Operations terminator and contains information about threats detected in the transportation network. This threat is based on analysis of data collected from secure areas frequented by travelers (transit stops, rest areas, etc.) and areas typically away from travelers (tunnels, bridges, roadway infrastructure, etc.), as well as threat information from Alerting and Advisory systems and emergency centers outside the local jurisdiction. This data flow includes a list of the types of threats detected, the locations, and any other details pertinent to the threat, subject to any constraints applied by the sending agency on providing information to outside agencies.

list_size + list_size{detected_threat
+ threat_severity
+ geographical_area
+ threat_duration}.

Additional Sizing Assumptions:
None

tro-transportation_system_status_for_disaster

This data flow consists of a report of the current status of the transportation system. This data is reported to rail operations as an ongoing status during a disaster. The data flow consists of the following data item which is defined in its own DDE:

disaster_transportation_system_status.

Additional Sizing Assumptions:
None

tro-transportation_system_status_for_evacuation

This data flow consists of a report of the current status of the transportation system. This data is reported to rail operations as an ongoing status during an evacuation. The data flow consists of the following data item which is defined in its own DDE:

evacuation_transportation_system_status.

Additional Sizing Assumptions:

None

tsf-equipment_availability_request

This data flow is sent from the Manage Maintenance and Construction function to the storage facility, and contains a request for equipment inventory information, including the availability, suitability for use, and current status of equipment at the facility. .

Additional Sizing Assumptions:
SIZE=4;

tsf-materials_status_request

This data flow is sent from the Manage Maintenance and Construction function to the storage facility, and contains a request for an update on data about the types and quantities of the materials available at the storage facility. .

Additional Sizing Assumptions:
SIZE=8;

tsp-evacuation_traveler_information

This data flow contains evacuation information to be disseminated to the traveler at a shelter. This data flow consists of the following data items each of which is defined in its own DDE:

evacuation_transit_schedule
+ evacuation_transit_routes
+ evacuation_transit_fares
+ roadway_detours_and_closures
+ evacuation_area
+ evacuation_schedule.

Additional Sizing Assumptions:
None

tsp-shelter_evacuation_information

This data contains evacuation plans and evacuation status updates for shelter providers. The data flow consists of the following data item which is defined in its own DDE:

emergency_center_identity
+ emergency_evacuation_data
+ evacuation_status_report
+ emergency_evacuation_plan.

Additional Sizing Assumptions:
None

tsp-shelter_information_request

This data flow contains a request for shelter providers to provide information regarding shelter availability, location, type, and facilities available to support an evacuation. .

Additional Sizing Assumptions:
SIZE=48;

tstws-archive_request

This data flow from the Manage Archived Data function to the Surface Transportation Weather Service terminator contains the request for data collected and stored by the terminator that may be of interest to archived data users systems that is not included in data from sources within the ITS functions. This data flow includes request for a catalog of the information available as well as the request for the data itself. This data flow consists of the following items each of which is defined in its own DDE:

surface_trans_weather_archive_catalog_request
+ surface_trans_weather_archive_data_request.

Additional Sizing Assumptions:
None

tstws-asset_treatment_info

This data flow is sent from the Manage Maintenance and Construction function to the Surface Transportation Weather Service and contains basic road facility and treatment information that supports forecasts for road conditions. .

Additional Sizing Assumptions:
SIZE=32;

tstws-env_info

This data flow contains processed environmental and road weather information. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

tstws-env_sensor_data

This data flow provides outputs from a set of environment sensors that are monitored by a the maintenance and construction function. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}.

Additional Sizing Assumptions:
None

tstws-env_sensor_data_from_traffic

This data flow provides outputs from a set of environment sensors that are monitored by the manage traffic function. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}.

Additional Sizing Assumptions:
None

tstws-roadway_env_sensor_data

This data flow provides a set of outputs from environment sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}.

Additional Sizing Assumptions:
None

tstws-roadway_env_sensor_status

This data flow provides a report of the status of a set of environmental sensor. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which are defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_device_status}.

Additional Sizing Assumptions:
None

tstws-trans_weather_archive_status

This data flow is sent from the Manage Archived Data function to the Surface Transportation Weather Service terminator. It is the status returned when surface transportation weather archive data is sent from the terminator to the Manage Archived Data function. .

Additional Sizing Assumptions:
SIZE=32;

tstws-trans_weather_info_request

This data flow contains a request for transportation weather information. This request may specify the area of interest (a geographic area, particular routes within a region, or specific road segments) or the desired type of information (e.g. temperature, roadway visibility). The request may specify observation or forecast information. For forecast information the request may specify the 'scale' of the forecast (i.e. the spatial resolution and time horizon of the forecast). .

Additional Sizing Assumptions:
SIZE=64;

tta-alert_notification

This data flow from the Process Electronic Payment function to the Toll Administrator terminator contains information about a wide-area alert that has been issued and is to be reviewed by the toll administrator for potentially passing on to the toll operators in the field. This information could include specific criteria for toll operators to be on the look out for as they perform their collection activities. .

Additional Sizing Assumptions:
SIZE=256;

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). .

Additional Sizing Assumptions:
SIZE=32;

tt-advisory_information

This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains displays of the traffic advisory, incident, and stop annunciation information (including affected non-motorized transportation services) produced in response to a previous traveler request. .

Additional Sizing Assumptions:
SIZE=10240000;

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 requester(s) and the toll segments in question. .

Additional Sizing Assumptions:
SIZE=64;

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 travelers may be encouraged to change the modal split in their trips. .

Additional Sizing Assumptions:
SIZE=8;

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. .

Additional Sizing Assumptions:
SIZE=10240000;

ttc-debited_driver_payment_at_vehicle

This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the cost of the update to the navigable map database used within a vehicle for on-line driver guidance, or the cost of commercial vehicle electronic credential filing and tax payments, from the value of credit currently stored on the payment instrument being used by the driver. .

Additional Sizing Assumptions:
SIZE=4;

ttc-debited_fare_payment_at_roadside

This data flow is sent to the traveler card / payment instrument by the Provide Electronic Payment Services function and contains confirmation that the cost of the current transit fare incurred at the roadside, i.e. a transit stop, plus if required the cost of advanced tolls, and/or parking lot charges, and/or transit fares, will be debited to the credit identity provided by the traveler card / payment instrument. The debit transaction will be carried out through the financial institution through other processes within the function. .

Additional Sizing Assumptions:
SIZE=4;

ttc-debited_payment_at_parking_lot

This data flow is sent to the traveler card / payment instrument by the Provide Electronic Payment Services function and contains confirmation that the cost of the current parking lot charge, plus if required the cost of advanced tolls, and/or parking lot charges, and/or transit fares, will be debited to the credit identity provided by the traveler card / payment instrument. The debit transaction will be carried out through the financial institution through other processes within the function. .

Additional Sizing Assumptions:
SIZE=4;

ttc-debited_payment_at_personal_device

This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct either the cost of the update to the navigable map database used by the traveler for on-line personal guidance, or the cost of a traveler's confirmed trip from the value of credit currently stored by the traveler card / payment instrument. .

Additional Sizing Assumptions:
SIZE=4;

ttc-debited_payment_at_toll_plaza

This data flow is sent to the traveler card / payment instrument by the Provide Electronic Payment Services function and contains confirmation that the cost of the current toll, plus if required the cost of advanced tolls, and/or parking lot charges, and/or transit fares, will be debited to the credit identity provided by the traveler card / payment instrument. The debit transaction will be carried out through the financial institution through other processes within the function. .

Additional Sizing Assumptions:
SIZE=4;

ttc-debited_payment_on_transit_vehicle

This data flow is sent to the traveler card / payment instrument by the Provide Electronic Payment Services function and contains confirmation that the cost of the current transit fare incurred on-board a transit vehicle, plus if required the cost of advanced tolls, and/or parking lot charges, and/or transit fares, will be debited to the credit identity provided by the traveler card / payment instrument. The debit transaction will be carried out through the financial institution through other processes within the function. .

Additional Sizing Assumptions:
SIZE=4;

ttc-debited_traveler_parking_payment

This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function and contains confirmation that the cost of the current parking lot charge, or if applicable, that for advanced tolls, and/or parking lot charges and/or transit fares will be debited to the credit identity provided by the traveler card. The debit transaction will be carried out through the financial institution through other processes within the function. .

Additional Sizing Assumptions:
SIZE=4;

ttc-debited_traveler_payment_at_roadside

This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the cost of a traveler's confirmed trip from the value of credit currently stored by the traveler card / payment instrument being used by the traveler. .

Additional Sizing Assumptions:
SIZE=4;

ttc-debited_traveler_payment_at_roadside_for_transit

This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the cost of advanced payments from the value of credit currently stored by the traveler card / payment instrument belonging being used by a traveler at the roadside, i.e. a transit stop. The advanced payments may cover tolls, and/or parking lot charges, and/or transit fares. .

Additional Sizing Assumptions:
SIZE=4;

ttc-debited_traveler_payment_at_vehicle

This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the cost of advanced payments from the value of credit currently stored by the traveler card / payment instrument belonging being used by a traveler on-board a transit vehicle. The advanced payments may cover tolls, and/or parking lot charges, and/or transit fares. .

Additional Sizing Assumptions:
SIZE=4;

ttc-request_fare_payment_at_roadside

This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the total cost of the current transit fare, or if required, that for advanced tolls, and/or parking lot charges and/or transit fares from the credit currently stored by the traveler card / payment instrument when used at the roadside, i.e. a transit stop. .

Additional Sizing Assumptions:
SIZE=2;

ttc-request_fare_payment_on_transit_vehicle

This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the total cost of the current transit fare, or if required, that for advanced transit fares from the credit currently stored by the traveler card / payment instrument when used on-board a transit vehicle. .

Additional Sizing Assumptions:
SIZE=2;

ttc-request_payment_at_parking_lot

This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the total cost of the current parking lot charge, or if required, that for advanced parking lot charges from the credit currently stored by the traveler card / payment instrument when used on-board a vehicle at a parking lot. .

Additional Sizing Assumptions:
SIZE=2;

ttc-request_payment_at_toll_plaza

This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the total cost of the current toll, or if required, that for advanced tolls, from the credit currently stored by the traveler card / payment instrument when used on-board a vehicle at a toll plaza. .

Additional Sizing Assumptions:
SIZE=2;

ttc-request_traveler_parking_payment

This data flow is sent to the traveler card / payment instrument from the Provide Electronic Payment Services function. It is a request to deduct the total cost of the current parking lot charge, or if required, that for advanced parking lot charges from the credit currently stored by the traveler card. .

Additional Sizing Assumptions:
SIZE=2;

ttc-traveler_personal_information_update

This data flow to the Traveler Card terminator contains updates concerning a traveler using a personal device to access ITS functions. This information may include updates to the traveler's personal information as they change addresses, update travel history, or their profile. .

Additional Sizing Assumptions:
SIZE=32;

ttc-traveler_remote_personal_information_update

This data flow to the Traveler Card terminator contains updates concerning a traveler using a kiosk to access ITS functions. This information may include updates to the traveler's personal information as they change addresses, update travel history, or their profile. .

Additional Sizing Assumptions:
SIZE=32;

tt-emergency_message

This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains the acknowledgment of a request for action by the Emergency Services previously submitted by the traveler. .

Additional Sizing Assumptions:
SIZE=4;

tt-extra_trip_data_request

This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains outputs about the trip that the traveler has previously requested from a kiosk, or messages about the previous confirmation of this trip. .

Additional Sizing Assumptions:
SIZE=1024000;

tt-guidance

This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains output (displays - text and/or graphics, and/or audio based information) which gives the traveler instructions on how to follow the route, e.g. cross the road, take a particular transit service, use the lift for wheelchairs, etc. .

Additional Sizing Assumptions:
SIZE=64;

tt-guidance_input_request

This data flow is sent to the traveler by the Provide Driver and Traveler Services function. It contains a request for the traveler to input a specific item of data needed to determine the best route for on-line guidance. The data may comprise such things as the destination, preferred arrival time, plus route choice preferences and constraints. The latter will include limitations on the choice of mode(s) for all or part of the route. .

Additional Sizing Assumptions:
SIZE=4;

tt-guidance_map_update_response

This data flow is sent to the traveler by the Provide Driver and Traveler Services function and contains the response to a previous request from the driver for an update to the digitized map data used to provide on-line traveler guidance. .

Additional Sizing Assumptions:
SIZE=4;

tt-guidance_route_details

This data flow is sent to the traveler from the Provide Driver and Traveler Services function and contains details of the route that has been selected in response to the traveler's request for on-line guidance. The route and choice of guidance method will have been based on previous input from the traveler. Guidance will not begin until the traveler has positively accepted this data. .

Additional Sizing Assumptions:
SIZE=128;

tto-alert_notification

This data flow within the Process Electronic Payment function contains information about a wide-area alert that has been issued and should be passed on to the toll operators in the field. This information could include specific criteria for toll operators to be on the look out for as they perform their collection activities. .

Additional Sizing Assumptions:
SIZE=256;

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). .

Additional Sizing Assumptions:
SIZE=32;

ttop-barrier_safeguard_status

This data flow is sent to the traffic operations personnel and is used to report the status of barrier systems (gates and other automated systems for roadway entry control) and safeguard systems (e.g. blast shields and other automated equipment used to mitigate the impact of incidents on transportation infrastructure). By monitoring this data flow, the traffic operations personnel can monitor the health and current operational status of these systems. .
Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=1024000;

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. .

Additional Sizing Assumptions:
SIZE=1024000;

ttop-deactivate_information_restrictions

This data flow is sent by the Manage Traffic function to the traffic operations personnel to remove all restrictions activated to protect sensitive traveler information. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=1024000;

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. .

Additional Sizing Assumptions:
SIZE=1024000;

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. .

Additional Sizing Assumptions:
SIZE=1024000;

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. .

Additional Sizing Assumptions:
SIZE=64;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=64;

ttop-disaster_response_plan_input_request

This data flow is a request for the traffic operations personnel to provide input and updates to a disaster response and recovery plan. It includes the following data item which is defined in its own DDE:

predefined_traffic_disaster_plan.

Additional Sizing Assumptions:
None

ttop-evacuation_plan_input_request

This data flow is a request for the traffic operations personnel to provide input and updates to an evacuation plan. It includes the following data item which is defined in its own DDE:

predefined_traffic_evacuation_plan.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=10240000;

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.

Additional Sizing Assumptions:
None

ttop-incident_video_image_output

This data flow is sent by the Manage Traffic function to the traffic operations personnel. It contains a video image from a closed circuit television (cctv) system which shows incident conditions at a point in the road and freeway network served by the function. .

Additional Sizing Assumptions:
SIZE=1024000;

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. .

Additional Sizing Assumptions:
SIZE=1024000;

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. .

Additional Sizing Assumptions:
SIZE=1024;

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. .

Additional Sizing Assumptions:
SIZE=16;

ttop-roadway_incident_status

This data flow is used by the Manage Traffic function to send the traffic operations personnel status of roadway information inputs used by the Manage Incidents facility. .

Additional Sizing Assumptions:
SIZE=64;

ttop-roadway_info_status

This data flow is sent to the traffic operations personnel and is used to report the status of roadway information systems (DMS or HAR). By monitoring this data flow, the traffic operations personnel can monitor the current operational status of these systems. .
Additional Sizing Assumptions:
SIZE=32;

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 three. .

Additional Sizing Assumptions:
SIZE=10240000;

ttop-traveler_information_restrictions

This data flow is sent by the Manage Traffic function to the traffic operations personnel. It contains restrictions to sensitive traveler information. .

Additional Sizing Assumptions:
SIZE=1024000;

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. .

Additional Sizing Assumptions:
SIZE=1024;

ttop-vehicle_signage_status

This data flow is sent to the traffic operations personnel and is used to report the status of in-vehicle signage data. .
Additional Sizing Assumptions:
SIZE=32;

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. .

Additional Sizing Assumptions:
SIZE=1024000;

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. .

Additional Sizing Assumptions:
SIZE=160;

ttop-wide_area_alert_notification

This data flow is sent from the Manage Traffic function and provides notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be sent to the traffic operations personnel to be on the look out for certain conditions. .

Additional Sizing Assumptions:
SIZE=1024;

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. .

Additional Sizing Assumptions:
SIZE=16;

tt-other_services_roadside_confirmed

This data flow is sent to the traveler by the Manage Transit function. It contains a message giving the traveler at the roadside, i.e. the transit stop, details of the success or failure of the request for other (yellow pages) services. .

Additional Sizing Assumptions:
SIZE=64;

tt-other_services_vehicle_confirmed

This data flow is sent to the traveler by the Manage Transit function. It contains a message giving the traveler on-board the vehicle details of the success or failure of the request for other (yellow pages) services. .

Additional Sizing Assumptions:
SIZE=64;

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. .

Additional Sizing Assumptions:
SIZE=10240000;

tt-personal_extra_trip_data_request

This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains outputs about the trip that the traveler has previously requested from a personal device, or messages about the previous confirmation of this trip. .

Additional Sizing Assumptions:
SIZE=1024000;

tt-personal_traveler_information

This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains displays of the traffic data, transit routes and schedules, and other services information to be displayed on a personal device. .

Additional Sizing Assumptions:
SIZE=10240000;

tt-personal_trip_planning_responses

This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains the result of requests for more data about the trip on which the traveler is requesting information from a personal device. .

Additional Sizing Assumptions:
SIZE=1024000;

ttra-border_clearance_status

This data flow is sent to the Trade Regulatory Agencies from the Manage Commercial Vehicles function. It contains status information regarding movement of goods across international borders. It includes border agency and transportation agency clearance results. .

Additional Sizing Assumptions:
SIZE=4;

ttra-domestic_transportation_information

This data flow is sent to Trade Regulatory Agencies from the Manage Commercial Vehicles function. It contains data regarding trade transportation activity and may include shipper classification, carrier information and commodity. .

Additional Sizing Assumptions:
SIZE=4;

ttra-transportation_border_clearance

This data flow is sent to the Trade Regulatory Agencies from the Manage Commercial Vehicles function. It contains notification information regarding the granting of permission for a commercial freight shipment to enter the United States. .

Additional Sizing Assumptions:
SIZE=4;

tt-remote_emergency_response

This data flow is sent to the traveler from the Manage Emergency Services function and contains acknowledgment of an emergency previously declared by the traveler. .

Additional Sizing Assumptions:
SIZE=8;

tt-remote_traveler_information

This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains displays of the traffic data, transit routes and schedules, and other services information to be displayed at a kiosks or remote traveler support device. .

Additional Sizing Assumptions:
SIZE=10240000;

tt-roadside_access_message

This data flow is sent to the traveler by the Manage Transit function. It contains a message giving the traveler details of the success or failure of the fare transaction previously initiated from at the roadside, i.e. the transit stop. .

Additional Sizing Assumptions:
SIZE=8;

tt-roadside_payment_confirmed

This data flow is sent to the traveler by the Manage Transit function. It contains a message giving the traveler at the roadside, i.e. the transit stop, details of the success or failure of the payment transaction. .

Additional Sizing Assumptions:
SIZE=4;

tt-secure_area_broadcast_message

This data flow contains textual or audio information for travelers in secure areas such as rest areas, park and ride lots, etc. The information will be sent out as part of the response to an emergency or incident being detected within the network. .

Additional Sizing Assumptions:
SIZE=48;

tt-secure_transit_vehicle_broadcast_message

This data flow contains textual or audio information for travelers on-board a transit vehicle. This information will be sent out as part of the response to an emergency or incident being detected within the network. .

Additional Sizing Assumptions:

SIZE=48;

tt-secure_transit_vehicle_emergency_response

This data flow is sent to the traveler on-board a transit vehicle from the Manage Emergency Services function and contains acknowledgment of an emergency previously declared by the traveler. .

Additional Sizing Assumptions:
SIZE=8;

ttso-archive_status

This data flow is sent to the transit 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). .

Additional Sizing Assumptions:
SIZE=32;

ttso-coordination_request

This data flow is sent to the transit system operator by the Manage Transit function. It contains requests for input on the responses to be made to a particular emergency situation or incident. .

Additional Sizing Assumptions:
SIZE=8;

ttso-emergency_plan_response

This data flow is sent from the Manage Transit function to the Transit System Operator to present the data for the coordination of response plans between the Transit function and the Emergency management function for disasters and evacuations. This data flow is used to coordinate disaster response and recovery plans with transit. It contains information regarding the nature of the disaster, and the preplanned response and evacuation plan for transit. Given this information, transit operators can provide a plan that it will use that is appropriate for the given disaster. .

Additional Sizing Assumptions:
SIZE=256;

ttso-emergency_request

This data flow is sent to the transit system operator by the Manage Transit function and contains the emergency requests that have been input from either the transit vehicle operator or the traveler. .

Additional Sizing Assumptions:
SIZE=64;

ttso-infrastructure_integrity_status

This data flow is sent to the transit system operator by the Manage Transit function and contains the integrity status of the transit and rail infrastructure that has been input from the Security Monitoring function. This data can be used to reroute transit vehicles, including shutting down light and commuter rail lines if there is a problem. .

Additional Sizing Assumptions:
SIZE=64;

ttso-media_parameters

This data flow is sent to the transit 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 transit network that is automatically sent to the media. .

Additional Sizing Assumptions:
SIZE=1024;

ttso-parameters

This data flow is sent to the transit system operator by the Manage Transit function and contains a list of the currently available planning parameters that can be used to prepare transit schedules. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output. .

Additional Sizing Assumptions:
SIZE=1024;

ttso-paratransit_service

This data flow is sent to the transit system operator by the Manage Transit function. It contains details of paratransit services as and when they are provided to travelers. This data also includes input from the transit vehicle operator concerning paratransit schedules and passenger loading. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output. .

Additional Sizing Assumptions:
SIZE=1024;

ttso-passenger_loading_error

This data flow is sent to the transit system operator by the Manage Transit function and contains details of a miss-match in the passenger (traveler, including a user of the transit system) data collected from the fare collection and data collection processes on-board a transit vehicle. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output. .

Additional Sizing Assumptions:
SIZE=32;

ttso-potential_incidents_alarm

This data flow is sent to the transit system operator by the Manage Transit function and contains information about a potential incident on-board a transit vehicle. .

Additional Sizing Assumptions:
SIZE=64;

ttso-proposed_corrections

This data flow is sent to the transit system operator by the Manage Transit function. It contains details of the proposed corrective action to return a transit vehicle to the schedule from which it has deviated. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output. .

Additional Sizing Assumptions:
SIZE=1024;

ttso-response_parameter_output

This data flow is sent to the transit system operator by the Manage Transit function. It contains the output of the preplanned responses to incidents by and within the transit operations area. .

Additional Sizing Assumptions:
SIZE=1024000;

ttso-technician_information

This data flow is sent to the transit system operator by the Manage Transit function. It contains information about transit maintenance technician work assignments. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output. .

Additional Sizing Assumptions:
SIZE=1024000;

ttso-transaction_reports

This data flow is sent to the transit system operator by the Provide Electronic Payments Services function. It contains details of the transit fare payment transactions that have taken place. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output. .

Additional Sizing Assumptions:
SIZE=10240000;

ttso-transit_fare_output

This data flow is sent from the transit system operator to the Provide Electronic Payment Services function. It contains the output of the current transit fares held in the local data store. .

Additional Sizing Assumptions:
SIZE=1024;

ttso-transit_services_output

This data flow is sent to the transit system operator by the Manage Transit function and contains output of the current transit routes and schedules. The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output. .

Additional Sizing Assumptions:
SIZE=10240000;

ttso-transit_vehicle_data

This data flow is sent to the transit system operator by the Manage Transit function. It contains data about transit vehicle(s). The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output. .

Additional Sizing Assumptions:
SIZE=1024000;

ttso-transit_vehicle_disable_status

This data flow is sent to the transit system operator from the Manage Transit function and contains status of the transit vehicle disabling. .

Additional Sizing Assumptions:
SIZE=1024;

ttso-transit_vehicle_maintenance_information

This data flow is sent to the transit system operator by the Manage Transit function. It contains a report on the maintenance state of transit vehicle(s). The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output. .

Additional Sizing Assumptions:
SIZE=1024000;

ttso-transit_vehicle_operator_information

This data flow is sent to the transit system operator by the Manage Transit function. It contains information about a transit vehicle operator that is being used to generate work assignments (e.g., route and schedule assignment, matching operator to vehicle, etc.) The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output. .

Additional Sizing Assumptions:
SIZE=1024000;

ttso-wide_area_alert_notification

This data flow is sent to the transit system operator by the Manage Transit function and provides notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be sent to the transit system operator to be on the look out for certain conditions. .

Additional Sizing Assumptions:
SIZE=1024;

ttso-work_schedule

This data flow is sent to the transit system operator by the Manage Transit function. It contains the schedule of work to be carried out to maintain the transit vehicle(s). The output may be in audio or visual form, with the latter being available in a variety of formats, e.g., displays, DMS, or hardcopy (paper) output. .

Additional Sizing Assumptions:
SIZE=1024;

ttsti-511_alert_notification

This data flow is sent from Provide Driver and Traveler Services function to the Telecommunications System for Traveler Information terminator. It contains wide area alerts formatted for traveler information suitable for transfer to a 511 caller via a 511 traveler information system and may be specially formatted for voice. This data flow includes alert notification information such as sever weather conditions, a natural or man-made disaster, civil emergency, or child abduction to be displayed to travelers. The data flow consists of the following data items each of which is defined in its own DDE:

wide_area_alert_notification_for_travelers.

Additional Sizing Assumptions:
None

ttsti-511_batch_regional_traveler_information

This data flow is sent from Provide Driver and Traveler Services function to the Telecommunications System for Traveler Information terminator. It contains region- specific traveler information suitable for batch upload to a 511 traveler information system. This data flow includes information such as traffic conditions, work zone and roadway maintenance information, roadway environment conditions, weather and event information, transit schedules, deviations, and fares, yellow pages information, current ferry and rail schedules, and airport status. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_information_for_511
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
None

ttsti-511_caller_traveler_information

This data flow is sent from Provide Driver and Traveler Services function to the Telecommunications System for Traveler Information terminator. It contains region- specific traveler information suitable for transfer to a 511 caller via a 511 traveler information system and may be specially formatted for voice. This data flow includes information such as traffic conditions, work zone and roadway maintenance information, roadway environment conditions, weather and event information, transit schedules, deviations, and fares, yellow pages information, current ferry and rail schedules, and airport status. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_information_for_511
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
None

tt-transit_information

This data flow is sent to the traveler by the Manage Transit function. It contains a message giving the traveler details of transit services that are currently available. .

Additional Sizing Assumptions:
SIZE=1024000;

tt-transit_vehicle_information

This data flow is sent to the traveler from the Manage transit function and contains information such as route number, service number, etc. about a transit vehicle that has just arrived at a transit stop. .

Additional Sizing Assumptions:
SIZE=1024;

tt-traveler_information

This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains displays of the travel data, transit routes and schedules, and other services (yellow pages) information produced in response to a previous traveler request. .

Additional Sizing Assumptions:
SIZE=10240000;

tt-trip_planning_responses

This data flow is used as part of the interface to the traveler by the Provide Driver and Traveler Services function. It contains the result of requests for more data about the trip on which the traveler is requesting information from a kiosk. .

Additional Sizing Assumptions:
SIZE=1024000;

tt-vehicle_access_message

This data flow is sent to the traveler by the Manage Transit function. It contains a message giving the traveler details of the success or failure of the fare transaction previously initiated from on-board the vehicle. .

Additional Sizing Assumptions:
SIZE=64;

tt-vehicle_payment_confirmed

This data flow is sent to the traveler by the Manage Transit function. It contains a message giving the traveler on-board the vehicle details of the success or failure of the payment transaction. .

Additional Sizing Assumptions:
SIZE=4;

ttvo-batch_mode_data_transfer_status

This data flow is sent to the transit vehicle operator by the Manage Transit function. It contains details of the result of the previous request for a transfer of transit fare transaction data to the Provide Electronic Payment Services function for further processing. If the transfer or processing failed the operator may request it to be repeated. .

Additional Sizing Assumptions:
SIZE=1;

ttvo-corrective_instructions

This data flow is sent to the transit vehicle operator by the Manage Transit function. It contains items of data which are designed to help the operator restore the transit vehicle to its correct schedule. These will comprise such things as corrections to the current route, changes to the sequence plus inclusion or deletion of stops and changes in the proscribed vehicle speed between stops. .

Additional Sizing Assumptions:
SIZE=2048;

ttvo-paratransit_information

This data flow is sent to the transit vehicle operator by the Manage Transit function. It contains information about the paratransit schedule that the transit vehicle operator is being requested to perform. This information comprises data such as the route, pick-up time, drop of point, and route. It may involve picking up one or more travelers at different locations along the route. .

Additional Sizing Assumptions:
SIZE=1024;

ttvo-request_fare_transaction_mode_set_up

This data flow is sent from the transit vehicle operator to the Manage Transit function. It contains a request that the operator input the mode of transit fare transaction processing that is to be used on-board the vehicle. Either one of the following two modes is possible: batch mode (part processing of each fare transaction carried out and the details of a large number of transactions transferred to the central function for further processing) or interactive mode (complete processing of each transaction carried out without stopping). .

Additional Sizing Assumptions:
SIZE=1;

ttvo-route_assignments

This data flow is sent to the transit vehicle operator by the Manage Transit function. It contains information for the operator about route assignments from the regular operator work assignment facility. .

Additional Sizing Assumptions:
SIZE=64;

ttvo-secure_transit_vehicle_emergency_response

This data flow is sent to the transit vehicle operator on-board a transit vehicle from the Manage Emergency Services function and contains acknowledgment of an emergency previously declared by the transit vehicle operator. .

Additional Sizing Assumptions:
SIZE=8;

ttvo-secure_transit_vehicle_surveillance

This data flow is sent to the transit vehicle operator on-board a transit vehicle from the Manage Emergency Services function and contains direct high-resolution digitized image and audio output of surveillance equipment on-board the vehicle. .

Additional Sizing Assumptions:
SIZE=IMAGE_LARGE;

ttvo-transit_vehicle_disable_status

This data flow is sent to the transit vehicle operator on-board a transit vehicle from the Manage Emergency Services function and contains status of the transit vehicle disabling initiated by the transit system operator. .

Additional Sizing Assumptions:
SIZE=1024;

ttvo-transit_vehicle_schedule_deviations

This data flow is sent to the transit vehicle operator by the Manage Transit function. It contains information for the transit vehicle operator on deviations from the transit route and/or schedule in order that normal service operation can be provided. .

Additional Sizing Assumptions:
SIZE=64;

twe-hri_status

This data flow provides a real-time indication of the status at a highway grade crossing (e.g. operational, not-operational, obstructed, etc.). .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=1;

tws-env_info

This data flow contains processed environmental and road weather information. This data is the result of aggregation, fusing, filtering or analysis of the input environmental and weather data. This data flow includes road condition observations and road condition predictions. The data flow includes road weather forecasts and road weather observations. It consists of the following data items each of which is defined in its own DDE:

road_conditions
+ road_weather_conditions.

Additional Sizing Assumptions:
None

tws-env_sensor_data

This data flow provides outputs from a set of environment sensors that are monitored by the maintenance and construction function. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}.

Additional Sizing Assumptions:
None

tws-env_sensor_data_from_traffic

This data flow provides outputs from a set of environment sensors that are monitored by the manage traffic function. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}.

Additional Sizing Assumptions:
None

tws-roadway_env_sensor_data

This data flow provides a set of outputs from environment sensors at the roadway. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ environment_sensor_output
+ environment_sensor_attributes}.

Additional Sizing Assumptions:
None

tws-roadway_env_sensor_status

This data flow provides a report of the status of environmental sensors at the roadway. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which are defined in its own DDE:

list_size + list_size{station_id
+ sensor_identity
+ sensor_device_status}.

Additional Sizing Assumptions:
None

tws-weather_archive_request

This data flow from the Manage Archived Data function to the Weather Service terminator contains the request for data collected and stored by the terminator that may be of interest to archived data users systems that is not included in data from sources within the ITS functions. This data flow includes request for a catalog of the information available as well as the request for the data itself. This data flow consists of the following items each of which is defined in its own DDE:

weather_archive_catalog_request
+ weather_archive_data_request.

Additional Sizing Assumptions:
None

tws-weather_archive_status

This data flow is sent from the Manage Archived Data function to the Weather Service terminator. It is the status returned when weather archive data is sent from the terminator to the Manage Archived Data function. .

Additional Sizing Assumptions:
SIZE=32;

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 function. .

Additional Sizing Assumptions:
SIZE=4;

typsp-transaction_request

This data flow is sent to the information and service provider from the Provide Driver and Traveler Services function and contains a request that payment for the associated yellow pages services and reservation request is transacted. .

Additional Sizing Assumptions:
SIZE=8;

typsp-yellow_pages_info_request

This data flow is used by the Provide Driver and Traveler Services function to obtain data from the information and service providers. It contains requests for information of a general nature, or specific information, or information an available transactions. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=5;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

update_routes

This data flow is used within the Manage Transit function to indicate that the transit routes should be re-calculated based on the current planning parameters provided by the transit system operator, the current operational data, plus the current transit routes, and using digitized map data for road and freeway layout, etc. .

Additional Sizing Assumptions:
SIZE=2;

update_schedules

This data flow is used within the Manage Transit function to indicate that the transit schedules should be re-calculated based on the currently planning parameters. .

Additional Sizing Assumptions:
SIZE=2;

usage_for_archive

This data flow is used within the Provide Driver and Traveler Services function to provide data to the data archive about current usage travelers are making of roads and other (non-transit) 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.

Additional Sizing Assumptions:
None

usage_for_archive_attributes

This data flow is used within the Provide Driver and Traveler Services function to provide data attribute information to the data archive about current usage travelers are making of roads and other (non-transit) 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.

Additional Sizing Assumptions:
None

user_defined_data

This data flow is sent by the Other Data Sources and contains information that may be of interest to archive data users systems such as economic data, demographic data, project data, or other data that users of the archive have requested be imported into the archive. .

Additional Sizing Assumptions:
SIZE=102400;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=32;

vehicle_accel_decel_data

This data flow contains the acceleration and deceleration characteristics profile for a vehicle over its entire speed range. The data consists of acceleration and deceleration rates for the whole range of vehicle speeds. The values at intermediate speeds must be calculated by interpolation. When this data is provided during the vehicle's manufacture, it will be a guaranteed maximum. When provided by other vehicles, or by the Manage Demand facility within the Manage Traffic function, it will override the maximum values. .

Additional Sizing Assumptions:
SIZE=500;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

vehicle_and_driver_safety_status

This data flow is used within the Provide Vehicle Monitoring and Control function and contains an indication of whether the vehicle and/or driver have been found to be safe or unsafe. .

Additional Sizing Assumptions:
SIZE=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. .

Additional Sizing Assumptions:
SIZE=1;

vehicle_change_position_requests

This data flow is used within the Provide Vehicle Monitoring and Control function and contains commands which will provide automatic control of the vehicle. It consists of the following items each of which is defined in its own DDE.

throttle_commands
+ steering_commands
+ brake_commands
+ direction_commands.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1024;

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. .

Additional Sizing Assumptions:
SIZE=8;

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=1;

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. .

Additional Sizing Assumptions:
SIZE=128;

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). .

Additional Sizing Assumptions:
SIZE=2;

vehicle_crash_restraint_commands

This data flow is used within the Provide Vehicle Monitoring and Control function to activate the vehicle's crash restraint mechanisms. .

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=128;

vehicle_data

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Vehicle Monitoring and Control function and contains data for use by the latter, details of a route that involves 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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
SIZE=list_size+1{SENSOR_LOCATION+SENSOR_LINK}{station_id+sensor_identity
+traffic_sensor_output};

vehicle_display_definitions_data

This data store is used within the Provide Driver and Traveler Services function. It contains information about each type of road sign and the templates for messages which can be output to the driver via an in-vehicle display. .

Additional Sizing Assumptions:
SIZE=4096;

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.

Additional Sizing Assumptions:
None

vehicle_fleet_status_for_personnel

This data flow is used by the fleet management function to report the status of the fleet of maintenance and construction vehicles to center personnel. It includes for each vehicle the type, equipment configuration, location, operational status, maintenance record, work activity status, and crew/operator status. Additionally, incident information and road network information are included. The data flow consists of the following data items each which is defined in its own DDE:

m_and_c_fleet_status
+ m_and_c_view_of_road_network.

Additional Sizing Assumptions:
None

vehicle_fleet_status_for_scheduler

This data flow is used by the fleet management function to report the status of the fleet of its vehicles to assist in scheduling maintenance and construction activities. It includes for each vehicle the type, equipment configuration, location, operational status, maintenance record, work activity status, and crew/operator status. The data flow consists of the following data item which is defined in its own DDE:

m_and_c_fleet_status.

Additional Sizing Assumptions:
None

vehicle_guidance_probe_data

This data flow is used within the Provide Driver and Traveler Services function and contains the time at which a vehicle was at a route segment end point. This data will be used to calculate the actual vehicle journey time for the route segment which may supplement or replace data gathered from other sources. 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.

Additional Sizing Assumptions:
None

vehicle_guidance_probe_data_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about the 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.

Additional Sizing Assumptions:
None

vehicle_guidance_route

This data flow is used within the Provide Driver and Traveler Services function and is a special form of 'route' for vehicle guidance only. It contains a subset of the data items included in the 'route' data flow to meet the requirements of in-vehicle infrastructure based guidance as opposed to the more general requirements for a route needed as part of a trip planning activity. This data flow includes the information required to provide an initial route or a route change while en route. The data flow consists of the following data items each of which is defined in its own DDE:

route_identity
+ route_segment_number{route_segment_description
+ route_segment_end_point
+ route_segment_estimated_travel_time
+ route_segment_report_position_points
+ route_segment_start_point}
+ vehicle_identity.

Additional Sizing Assumptions:
None

vehicle_guidance_route_accepted

This data flow is used within the Provide Driver and Traveler Services function and contains the acceptance by the driver of the previously provided route for on-line guidance. Acceptance must be provided before guidance can begin. The data flow consists of the following data item which is defined in its own DDE:

route_identity.

Additional Sizing Assumptions:
None

vehicle_guidance_route_accepted_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about 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.

Additional Sizing Assumptions:
None

vehicle_guidance_stored_data

This data flow is used within the Provide Driver and Traveler Services function and contains the route provided to a vehicle that is using dynamic guidance. This data is loaded into a store and provides information about which routes are being used. The identity of the vehicle is removed for privacy reasons. The data flow consists of the following data items each of which is defined in its own DDE:

route_identity
+ route_segment_number{route_segment_description
+ route_segment_end_point
+ route_segment_estimated_travel_time
+ route_segment_report_position_points
+ route_segment_start_point}.

Additional Sizing Assumptions:
SIZE=route_identity+NUM_SEGS{route_segment_report_position_points+route_segment_end_point
+route_segment_estimated_travel_time+route_segment_description
+route_segment_start_point};

vehicle_headway

This data item contains the measure of time between two successive vehicles in a traffic lane as they pass a point on the roadway. Measurements are taken from front bumper of vehicle to front bumper of other vehicle in seconds .

Additional Sizing Assumptions:
SIZE=2;

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=290;

vehicle_id_for_mcv

This data flow is used within the Manage Maintenance and Construction function and contains the unique vehicle identification number assigned to each maintenance and construction vehicle. .

Additional Sizing Assumptions:
SIZE=8;

vehicle_identity

This data flow contains the identity of a vehicle that may be stored electronically on the vehicle and compared with license data. .

Additional Sizing Assumptions:
SIZE=16;

vehicle_identity_for_collision_notification_store

This data store is used for vehicle identification in the event of a collision. It is built into the vehicle during the course of its manufacture and contains the vehicle's identity number.

vehicle_identity.

Additional Sizing Assumptions:
None

vehicle_identity_for_driver_security_store

This data store provides the vehicle identity for personal driver security messages and is built into the vehicle during the course of its manufacture. It contains the vehicle's identity number.

vehicle_identity.

Additional Sizing Assumptions:
None

vehicle_information

This data flow is sent from the Provide Vehicle Monitoring and Control function to the Provide Driver and Traveler Services function and contains data for output to the driver, automatic inclusion in driver messages (e.g. mayday), or a request for a route involving 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.

Additional Sizing Assumptions:
None

vehicle_information_evacuation_data

This flow contains information regarding the evacuation for output to the driver using in-vehicle display information systems. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule.

Additional Sizing Assumptions:
None

vehicle_input_data

This data is used within the Provide Driver and Traveler Services function and contains a vehicle route for guidance purposes and data about link journey times that is generated by and sent from centralized functions to the vehicle for use by the autonomous guidance process. It consists of the following data items each of which is defined in its own DDE:

link_and_queue_data
+ vehicle_guidance_route.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=16;

vehicle_location_analysis_outputs

This data flow contains results from vehicle location tracking analysis, such as average speed, etc. .

Additional Sizing Assumptions:
SIZE=32;

vehicle_location_for_advisories

This data flow is used within the Provide Driver and Traveler 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 traveler and driver in-vehicle advisory data to make it relevant to the current geographic area where the vehicle is located. It consists of the following data item which is defined in its own DDE:

location_identity.

Additional Sizing Assumptions:
None

vehicle_location_for_autonomous_guidance

This data flow is used within the Provide Driver and Traveler Services function and contains the vehicle's location as 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:

location_identity.

Additional Sizing Assumptions:
None

vehicle_location_for_cv

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Commercial Vehicles function. It contains the vehicle location data for use in reporting on-board data to the commercial vehicle fleet manager. 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.

Additional Sizing Assumptions:
None

vehicle_location_for_dynamic_guidance

This data flow is used within the Provide Driver and Traveler Services function and contains the vehicle's location as 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:

location_identity.

Additional Sizing Assumptions:
None

vehicle_location_for_emergencies

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

Additional Sizing Assumptions:
None

vehicle_location_for_emergency_services

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Emergency Services function and contains a vehicle's location along with the time at which it was recorded. This is a high precision data flow that enables the location of an emergency vehicle to be pinpointed to a high degree of accuracy by the Manage Emergency Services function. It consists of the following data item which is defined in its own DDE:

location_identity
+ time.

Additional Sizing Assumptions:
None

vehicle_location_for_incidents

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

Additional Sizing Assumptions:
None

vehicle_location_for_mcv

This data flow is sent from the Provide Driver and Traveler Services function to the Manage Maintenance and Construction function and contains a vehicle's location as computed from data input to sensors controlled by the process that determines vehicle location. This is a high precision data flow that enables the location of a maintenance and construction vehicle to be pin-pointed to a high degree of accuracy. It consists of the following data item which is defined in its own DDE:

location_identity.

Additional Sizing Assumptions:
None

vehicle_location_for_mcv_operator

This data flow contains the current location of a maintenance and construction vehicle, together with the time and date to which the location applies for presentation to the vehicle operator. It consists of the following data item which is defined in its own DDE:

vehicle_location_for_mcv
+ date
+ time.

Additional Sizing Assumptions:
None

vehicle_location_for_mcv_tracking

This data flow is within the Manage Maintenance and Construction function and contains the current location of a maintenance and construction vehicle, together with the time and date to which the location applies for use in tracking the maintenance and construction vehicle fleet. It consists of the following data item which is defined in its own DDE:

vehicle_location_for_mcv
+ vehicle_id_for_mcv
+ date
+ time.

Additional Sizing Assumptions:
None

vehicle_location_for_mcv_tracking_history

This data flow is within the Manage Maintenance and Construction function and contains the history of the location of a maintenance and construction vehicle for tracking purposes. It consists of the following data items each of which is defined in its own DDE:

list_size{vehicle_location_for_mcv_tracking
+ date
+ time}.

Additional Sizing Assumptions:
None

vehicle_location_for_transit

This data flow is sent from the Provide Driver and Traveler 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 transit vehicle. It consists of the following data item which is defined in its own DDE:

location_identity.

Additional Sizing Assumptions:
None

vehicle_map_database

This data flow is used by the Provide Driver and Traveler Services function. It contains details of the physical geometry of each road segment, including the location of such things as road signs, bends, junctions, traffic lanes and their use, etc. For each route segment, it also contains the historical average link journey time and queuing time computed from data recorded over the last several months, and available for different time of the day/days of the week, to take account of peak travel times, weekend travel etc. .

Additional Sizing Assumptions:
SIZE=10240000;

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. .

Additional Sizing Assumptions:
SIZE=1;

vehicle_object_detection_sensor_control

This data flow provides control commands for object detection sensors located on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ object_sensor_control_data}.

Additional Sizing Assumptions:
None

vehicle_object_detection_sensor_data

This data flow contains actual sensor readings collected from object detection sensors located on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ object_sensor_data_collected}.

Additional Sizing Assumptions:
None

vehicle_object_detection_sensor_data_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from object detection sensors located on-board a transit vehicle. This data is intended to be processed further at the collection site prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ sensor_identity
+ object_sensor_data_collected.

Additional Sizing Assumptions:
None

vehicle_object_detection_sensor_status

This data flow is used within the Manage Emergency Services function to report the status of an object detection sensor located on-board a transit vehicle. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ object_sensor_fault_data}.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=2;

vehicle_output_data

This data is flow used within the Provide Driver and Traveler Services function and contains a request for on-line guidance and probe data which is sent from the vehicle to a centralized point for processing. It consists of the following data items each of which is defined in its own DDE:

vehicle_guidance_probe_data
+ vehicle_guidance_route_accepted
+ vehicle_route_request.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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_roads.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

vehicle_probe_data_amalgamation

This data flow is used within the Provide Driver and Traveler 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}.

Additional Sizing Assumptions:
SIZE=list_size+NUM_SEGS{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. .

Additional Sizing Assumptions:
SIZE=64;

vehicle_queue_length

This data item contains a measure of the length of queue as measured by a traffic sensor. This may be on the roadway (surface street or highway), or at specific locations such as the entrance to a parking lot. The data contains the approximate number of vehicles, based on the average vehicle length and the position of the detector relative to a fixed point from which the queue needs to be measured. .

Additional Sizing Assumptions:
SIZE=1;

vehicle_route

This data flow is used within the Provide Driver and Traveler Services function and is a special form of 'route' for vehicles only. It may also have special forms and ultimate destinations depending on the type of vehicle and type of route (see 'modes') and contains the following items each which is defined in its own DDE:

route.

Additional Sizing Assumptions:
None

vehicle_route_request

This data is flow used within the Provide Driver and Traveler Services function and contains a request for on-line guidance of the vehicle. This will have been generated by the driver and will include the necessary source and destination data from which a route can be computed. It consists of the following data items each of which is defined in its own DDE:

constraint_on_acceptable_travel_time
+ constraint_on_eta_change
+ constraint_on_special_needs
+ constraint_on_load_classification
+ constraint_on_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.

Additional Sizing Assumptions:
None

vehicle_route_request_for_archive

This data flow is used within the Provide Driver and Traveler Services function to provide data to the data archive about requests for 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.

Additional Sizing Assumptions:
None

vehicle_safety_status

This data flow contains data about the extent of a vehicle's collision damage. .

Additional Sizing Assumptions:
SIZE=4;

vehicle_secure_area_audio

This data flow is used within the Manage Emergency Services function and contains the direct audio output of surveillance equipment on-board a transit vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_audio.

Additional Sizing Assumptions:
None

vehicle_secure_area_audio_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the direct audio output of surveillance equipment on-board a transit vehicle. This data is intended to be processed further at the collection site prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_audio.

Additional Sizing Assumptions:

None

vehicle_secure_area_field_proc_parameters

This data flow is used within the Manage Emergency Services function and contains the information required to control the sensor and surveillance data processing occurring on-board a transit vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_secure_area_surveillance_field_proc_parameters
+ vehicle_secure_area_sensor_field_proc_parameters.

Additional Sizing Assumptions:
None

vehicle_secure_area_images

This data flow is used within the Manage Emergency Services function and contains the direct high-resolution digitized image output of surveillance equipment on-board a transit vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image.

Additional Sizing Assumptions:
None

vehicle_secure_area_images_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the direct high-resolution digitized image output of surveillance equipment on-board a transit vehicle. This data is intended to be processed at the collection site further prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ surveillance_device_type_identity
+ secure_video_image.

Additional Sizing Assumptions:
None

vehicle_secure_area_sensor_field_proc_parameters

This data flow contains parameters to define how the sensor data collected from on-board a transit vehicle is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing at the collection point and include threat sensors and object detection sensors. .

Additional Sizing Assumptions:
SIZE=32;

vehicle_secure_area_sensor_threat_data

This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from sensor systems on-board transit vehicles. This data is collected from threat sensors and object detection sensors, and could include an alarm indicating that a threshold has been met or a data pattern recognized. The data flow consists of the following data items each of which is defined in its own DDE:

sensor_threat_data
+ location_identity.

Additional Sizing Assumptions:
None

vehicle_secure_area_surveillance_control

This data flow is used within the Manage Emergency Services function and contains control parameters for closed circuit television (cctv) and audio systems located on-board a transit vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_video_control
+ secure_area_audio_control.

Additional Sizing Assumptions:
None

vehicle_secure_area_surveillance_control_from_transit_operator

This data flow is used within the Manage Emergency Services function and contains control parameters input by a transit vehicle operator for closed circuit television (cctv) and audio systems located on-board a transit vehicle. The data flow consists of the following data items each of which is defined in its own DDE:

surveillance_device_type_identity
+ video_control_data
+ audio_control_data.

Additional Sizing Assumptions:
None

vehicle_secure_area_surveillance_field_proc_parameters

This data flow contains parameters to define how the surveillance data collected from on-board a transit vehicle is aggregated, filtered, fused, processed, or analyzed. These parameters will define processing at the collection point.
.

Additional Sizing Assumptions:
SIZE=32;

vehicle_secure_area_surveillance_for_transit_operator

This data flow is used within the Manage Emergency Services function and contains the direct high-resolution digitized image and audio output of surveillance equipment on-board a transit vehicle for use by the transit vehicle operator. The data flow consists of the following data items each of which is defined in its own DDE:

surveillance_device_type_identity
+ secure_video_image
+ secure_audio.

Additional Sizing Assumptions:
None

vehicle_secure_area_surveillance_status

This data flow is used within the Manage Emergency Services function and contains status information from closed circuit television (cctv) and audio systems located on-board a transit vehicle. This data flow contains an indication that a fault has been found with the collection of video or audio data by the device. The data flow consists of the following data items each of which is defined in its own DDE:

secure_area_video_status
+ secure_area_audio_status.

Additional Sizing Assumptions:
None

vehicle_secure_area_surveillance_threat_data

This data flow is used within the Manage Emergency Services function and contains threat information based on processing and analysis of data collected from surveillance systems on-board transit vehicles. This data could include an alarm indicating that a threshold has been met or an audio or video pattern recognized. The data flow consists of the following data items each of which is defined in its own DDE:

surveillance_threat_data
+ transit_vehicle_identity
+ location_identity.

Additional Sizing Assumptions:
None

vehicle_security_status

This data flow contains the status of the vehicle's security systems, which include the lock system and/or alarm system. This data flow could be a coded representation of the status (e.g. LE- locks engaged, LD-locks disengaged).
.

Additional Sizing Assumptions:
SIZE=4;

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. .

Additional Sizing Assumptions:
SIZE=4;

vehicle_security_system_commands_request

This data flow is sent from the Provide Vehicle Monitoring function to the Manage Emergency Services function to allow mayday service providers to send security functions of a vehicle requesting mayday support. These commands include changing the security settings such as operating the door locks or disabling an alarm remotely. .

Additional Sizing Assumptions:
SIZE=32;

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 (e.g. STOP, YIELD, etc), temporary signs (e.g. detours), and dynamic message signs. Situation data provides information about traffic conditions, e.g. congestion and speed or road weather conditions, e.g. 'icy road ahead'. Different 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
+ vehicle_signage_output_data
+ vehicle_signage_wide_area_alert_information
+ vehicle_signage_traffic_data
+ vehicle_signage_evacuation_data}.

Additional Sizing Assumptions:
SIZE=list_size+VEHICLE_SIGN_OUTPUTS{vehicle_signage_output_identity
+6{vehicle_signage_output_data}+8{vehicle_signage_traffic_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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

vehicle_sign_data_output_location

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveler Services function and contains the location of the equipment that is outputting in-vehicle signage data. The data flow consists of the following data item which is defined in its own DDE:

location_identity.

Additional Sizing Assumptions:
None

vehicle_sign_data_status

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. .

Additional Sizing Assumptions:
SIZE=1;

vehicle_sign_equip_status_for_m_and_c

This data flow is used within the Manage Maintenance and Construction function and contains an indication that a fault has been found with the equipment that outputs in-vehicle sign data at the roadside. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

vehicle_signage_alert_data

This data flow is sent to the Manage Traffic function to provide notification of a major emergency such as a natural or man made disaster, civil emergency, or child abduction to be sent to the traffic operations personnel to be displayed within vehicles. It consists of the following data items each of which is defined in its own DDE:

wide_area_alert_notification_for_traffic.

Additional Sizing Assumptions:
None

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). .

Additional Sizing Assumptions:
SIZE=3;

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}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_CUR_INCIDENTS{current_incident_details};

vehicle_signage_data

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveler Services function. It contains data for use in producing in-vehicle signage displays. The data flow consists of the following data items each of which is defined in its own DDE:

vehicle_sign_data_output_location
+ vehicle_signage_output_data
+ vehicle_signage_traffic_data
+ vehicle_signage_wide_area_alert_information
+ vehicle_signage_evacuation_data.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=3;

vehicle_signage_evacuation_data

This flow contains information regarding the evacuation for use by in-vehicle signage systems. The data flow consists of the following data items which are defined in their own DDE:

evacuation_area
+ evacuation_schedule.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=3;

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_planned_event_data.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=3;

vehicle_signage_operator_input

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveler Services function. It contains data from traffic operations personnel 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
+ vehicle_signage_output_data
+ vehicle_signage_traffic_data
+ vehicle_signage_wide_area_alert_information.

Additional Sizing Assumptions:
None

vehicle_signage_operator_status

This data flow is used within the Manage Traffic function and contains the status of the in-vehicle signage displays produced by traffic operations personnel. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{vehicle_signage_output_identity
    + vehicle_signage_output_data
    + vehicle_signage_traffic_data}.

Additional Sizing Assumptions:
SIZE=list_size+VEHICLE_SIGN_OUTPUTS{vehicle_signage_output_identity
+6{vehicle_signage_output_data}+8{vehicle_signage_traffic_data}};

vehicle_signage_output_data

This data flow is sent from the Manage Traffic function to the Provide Driver and Traveler 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 traveler 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_incident_details | vehicle_signage_dms_data
| environmental_data_for_signage].

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+MAX_PLANNED_EVENTS{planned_event_details};

vehicle_signage_traffic_data

This data flow is used within the Manage Traffic and Provide Driver and Traveler Services functions. It contains vehicle speed and occupancy data for a link that is in the area local to a process that outputs data for use by in-vehicle signage units. The data flow consists of the following data items each of which is defined in its own DDE:

link_identity
+ vehicle_occupancy
+ vehicle_speed.

Additional Sizing Assumptions:
None

vehicle_signage_wide_area_alert_information

This data flow is used within the Manage Traffic and Provide Driver and Traveler Services function and contains data that represents alerts such as a major emergency, man made disaster, civil emergency, or child abduction. 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 alerts will be for those incidents that are within the jurisdictional area to the roadside broadcast processes and will be used to provide driver and traveler 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_alert_data.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:

SIZE=64;

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.

Additional Sizing Assumptions:
None

vehicle_smart_probe_data_indication

This data flow contains the data from a vehicle smart probe, processed to provide an indication of the type of hazard that the vehicle found on the road or freeway. The indication may include: bridge down, i.e. broken, or in some way hazardous to traffic; earth or mud slide; fog, smoke or mist reducing visibility; the road surface is icy; road covered by a liquid, e.g. oil, which makes it hazardous to traffic; obstacle on road, e.g. fallen tree, telegraph pole, etc.; road subsidence, i.e. part of the road surface has fallen away. .

Additional Sizing Assumptions:
SIZE=3;

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 by. .

Additional Sizing Assumptions:
SIZE=1;

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_location.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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_data.

Additional Sizing Assumptions:
None

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}.

Additional Sizing Assumptions:
SIZE=list_size+VEH_PROBE_SITES{vehicle_smart_probe_data_for_storage};

vehicle_speed

This data item contains the speed of a vehicle which has been detected by a detector located on the highway as the vehicle flowed over its sensor. .

Additional Sizing Assumptions:
SIZE=1;

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].

Additional Sizing Assumptions:
SIZE=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.

Additional Sizing Assumptions:
None

vehicle_status_details

This data flow contains the operational status of the vehicle as determined from on-board sensors. It consists of the following data items, each of which are defined by their own DDE's:

vehicle_security_status
+ vehicle_system_status.

Additional Sizing Assumptions:
None

vehicle_status_details_for_broadcast

This data flow is sent from the Provide Vehicle Control and Monitoring function to the Provide Driver and Traveler Services function. It contains the operational status of the vehicle for output to the driver. The data flow consists of the following data item which is defined in its own DDE:

vehicle_status_details.

Additional Sizing Assumptions:
None

vehicle_status_details_for_driver_security

This data flow is sent from the Provide Vehicle Control and Monitoring function to the Provide Driver and Traveler Services function. It contains the operational status of the vehicle for use in driver initiated emergency message output to the Manage Emergency Services function. The data flow consists of the following data item which is defined in its own DDE:

vehicle_status_details.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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
+ traffic_sensor_data_for_automated_lane_changing.

Additional Sizing Assumptions:
None

vehicle_status_update

This data flow is used by the Provide Driver and Traveler Services function to send additional data about a vehicle for an emergency declared by a driver to the Manage Emergency Services function. .

Additional Sizing Assumptions:
SIZE=32;

vehicle_system_status

This data flow contains the operational status of various systems within the vehicle, such as braking, engine, and safety devices. This data flow could be a coded representation of the system status (e.g. engine not at operating temperature, driver in control of the vehicle, vehicle under automatic control, vehicle in acceleration mode, i.e. speed increasing, vehicle in deceleration mode, i.e. speed decreasing, vehicle in braking mode, i.e. brakes on, potential vehicle fault, i.e. there is a fault but it doesn't affect operations, vehicle safety fault, i.e. the vehicle has a fault affecting its safety) or it could be a set of parameters with values associated. .

Additional Sizing Assumptions:
SIZE=4;

vehicle_systems_control_by_mc_center_personnel

This data flow is sent by the maintenance and construction center personnel interface function to provide control information to the systems on-board a maintenance and construction vehicle. It includes control data to support materials dispersion and other functions, depending upon the type of vehicle. .

Additional Sizing Assumptions:
SIZE=32;

vehicle_systems_control_by_mcv_operator

This data flow is used by the maintenance and construction vehicle operator to control the systems on-board the vehicle, and includes control data to support materials dispersion and other functions, depending upon the type of vehicle. .

Additional Sizing Assumptions:
SIZE=32;

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_input_data.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=4;

vehicle_threat_sensor_control

This data flow provides control commands for threat sensors (e.g., thermal, acoustic, radiological, chemical) located on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ threat_sensor_control_data}.

Additional Sizing Assumptions:
None

vehicle_threat_sensor_data

This data flow contains actual sensor readings collected from threat sensors (e.g., thermal, acoustic, radiological, chemical) located on-board a transit vehicle. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ threat_sensor_data_collected}.

Additional Sizing Assumptions:
None

vehicle_threat_sensor_data_for_field_proc

This data flow is used within the Manage Emergency Services function and contains the sensor readings collected from threat sensors (e.g., thermal, acoustic, radiological, chemical) located on-board a transit vehicle. This data is intended to be processed further at the collection site prior to being sent to a center for additional analysis. The data flow consists of the following data items each of which is defined in its own DDE:

transit_vehicle_identity
+ sensor_identity
+ threat_sensor_data_collected.

Additional Sizing Assumptions:
None

vehicle_threat_sensor_status

This data flow is used within the Manage Emergency Services function to report the status of a threat sensor (e.g., thermal, acoustic, radiological, chemical) located on-board a transit vehicle. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{transit_vehicle_identity
+ sensor_identity
+ threat_sensor_fault_data}.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

vehicle_toll_probe_data

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function. It contains the smoothed average vehicle journey times for the route segment between two toll collection points, and the identity of the route segment. The data is used to calculate link journey times for in-vehicle guidance purposes. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{route_segment_identity
+ route_segment_journey_time_from_tolls}.

Additional Sizing Assumptions:
SIZE=list_size+TOLL_PLAZAS{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. .

Additional Sizing Assumptions:
SIZE=8;

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. .

Additional Sizing Assumptions:
SIZE=16;

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.

Additional Sizing Assumptions:
None

vehicle_utilization_information

This data flow is used within the Manage Maintenance and Construction function and contains information on maintenance and construction vehicle utilization to assist in predicting vehicle repair or replacement needs. .

Additional Sizing Assumptions:
SIZE=36;

verified_emergency

This data flow is used within the Manage Emergency Services function. It contains information about an emergency that has been identified and verified from the inputs received within the function. The data flow consists of some or all or the following data items which are defined in their own DDEs:

identified_emergency_details
+ vehicle_status_details
+ emergency_input_for_disaster.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=128;

video_control_data

This data flow contains control parameters for closed circuit television (cctv) systems and may specify camera pan, tilt, and zoom, plus other picture controls. .

Additional Sizing Assumptions:
SIZE=8;

video_control_from_m_and_c

This data flow contains control parameters for closed circuit television (cctv) systems that have been installed in work zones or maintenance areas. These parameters may cover things such as camera pan, tilt, and zoom, plus other picture controls. .

Additional Sizing Assumptions:
SIZE=8;

video_device_equip_status_for_m_and_c

This data flow provides a report to the Manage Maintenance and Construction function of the status of CCTV equipment at the roadside. By monitoring this data flow, the receiving process can monitor the health and current status of field equipment and repair if deemed necessary. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{station_id
+ device_identity
+ roadside_device_status}.

Additional Sizing Assumptions:
None

video_device_status

This data flow is used within the Manage Traffic function and contains an indication that a fault has been found with the processing of video data by the cctv at the roadside. .

Additional Sizing Assumptions:
SIZE=1;

video_fault_data

This data flow is used to report the status of a video surveillance device, providing the its configuration as well as a fault indication. .

Additional Sizing Assumptions:
SIZE=24;

violation_type

This data flow is used within the Manage Emergency Services function and defines a violation type using a character code. .

Additional Sizing Assumptions:
SIZE=3;

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. .

Additional Sizing Assumptions:
SIZE=2048000;

walkway_information

This data flow contains details contains details for walkway information (available walkways, walkways under construction, etc.) available to pedestrians. .

Additional Sizing Assumptions:
SIZE=20480;

wayside_status

This data flow represents the real-time status of the wayside equipment at an HRI. .

Additional Sizing Assumptions:
SIZE = 128;

weather_advisories

This data flow provides an indication of weather situations that cause significant inconveniences but do not meet warning criteria and, if caution is not exercised, could lead to life-threatening situations. Advisories are issued for significant events that are occurring, are imminent, or have a very high probability of occurrence. .

Additional Sizing Assumptions:
SIZE=64;

weather_archive_catalog

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

Additional Sizing Assumptions:
SIZE=32;

weather_archive_catalog_request

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

Additional Sizing Assumptions:
SIZE=32;

weather_archive_data_request

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

Additional Sizing Assumptions:
SIZE=32;

weather_data

This data flow is sent by the Weather Service Provider and contains weather information that may be of interest to archive data users systems. .

Additional Sizing Assumptions:
SIZE=32;

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.

Additional Sizing Assumptions:
None

weather_data_for_archive

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

weather_data
+ weather_data_attributes.

Additional Sizing Assumptions:
None

weather_forecast_details

This data flow contains forecasts of specific atmospheric weather variables including temperature (ambient and dew point), pressure, wind parameters (direction, speed, and character), humidity, precipitation, visibility, and light conditions. The data flow also contains weather variable attributes such as ensemble statistics, initialization time of forecast, source of boundary conditions, means of forecast, the application location of the forecast and the applicable time of the forecast. .

Additional Sizing Assumptions:
SIZE=128;

weather_info_511_request

This data flow is used within the Provide Driver and Traveler Services function and is a region-specific request for weather information to be output to a 511 traveler information system. The data flow consists of the following data items each of which is defined in its own DDE:

traveler_weather_info_request
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
None

weather_info_for_511

This data flow is used within the Provide Driver and Traveler Services function and contains data about current weather conditions for output to a 511 traveler information system. It consists of the following data items each of which is defined in its own DDE:

fws-current_weather_observations
+ fws-weather_forecasts
+ fstws-surface_trans_weather_observations
+ fstws-surface_trans_weather_forecasts
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
None

weather_observation_attributes

This data flow contains meta data about weather observations. This meta data includes time of observation, observation facility characteristics, and identification of filtering or assimilation performed on the observations. .

Additional Sizing Assumptions:
SIZE=32;

weather_scale_forecast_data_attributes

This data flow contains meta data about the meteorological scale forecast including persistence of an observation or previous forecast, numerical model used, model output statistics (MOS), and any description of how forecast types are combined. .

Additional Sizing Assumptions:
SIZE=32;

weather_service_emergency_information

This data flow contains the relevant weather information to assist the emergency dispatch function to better respond to an incident. .

Additional Sizing Assumptions:
SIZE=256;

weather_service_information

This data flow consists of weather information from the Weather Service terminator, including current weather observations and various scales of weather forecasts. It contains the following items that will be organized by geographic area to allow for local variations and each of which is defined in its own DDE:

fws-current_weather_observations
+ fws-weather_forecasts.

Additional Sizing Assumptions:
None

weather_service_information_request

This data flow requests weather information from the Provide Driver and Traveler Services and Manage Traffic functions. The data requested will provide weather conditions for the Provide Traffic Operations Personnel Traffic Data Interface. .

Additional Sizing Assumptions:
SIZE=6;

weather_warnings

This data flow provides a localized warning of severe or hazardous weather conditions that may impact (or constitute a hazard for) the majority of people in a given areas. Warnings are given for summer weather related events such as hail, hurricanes, thunderstorms, tornados, storm surges, excess heat, high winds, heavy rain etc. Warnings are given for winter weather related events such as winter storms (blizzards, heavy snow, or ice), freezing rain, flash freezing, extreme cold temperatures or wind-chill, frost, etc. .

Additional Sizing Assumptions:
SIZE=64;

weather_watches

This data flow provides an indication that a region is may experience severe weather conditions in the near future. A weather watch is intended to alert the public to the possibility that severe weather conditions (mainly severe thunderstorms) may develop later such that a warning may be issued. Watches are most frequently issued to advise of the potential for the development of severe thunderstorms during the summer season, but they may also be issued in advance of severe winter storms. .

Additional Sizing Assumptions:
SIZE=64;

wide_area_alert_information_for_kiosks

This data flow contains wide area alert information pertaining to a major emergency such as a natural or man-made disaster, civil emergency, or child abduction for output to the traveler at a kiosk and other remote traveler services. This data flow consists of the following data items each of which is defined in its own DDE:

wide_area_alert_notification_for_travelers.

Additional Sizing Assumptions:
None

wide_area_alert_information_for_personal_devices

This data flow contains wide area alert information pertaining to a major emergency such as a natural or man-made disaster, civil emergency, or child abduction for output to a traveler's personal device. This data flow consists of the following data items each of which is defined in its own DDE:

wide_area_alert_notification_for_travelers.

Additional Sizing Assumptions:
None

wide_area_alert_information_for_vehicle

This data flow contains wide area alert information pertaining to a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be disseminated to travelers in their vehicle. This data flow consists of the following data items each of which is defined in its own DDE:

wide_area_alert_notification_for_travelers.

Additional Sizing Assumptions:
None

wide_area_alert_notification_for_maint

This data flow is sent to the Manage Maintenance and Construction function to provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction and to be on the look out for certain conditions. It consists of the following data items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:
None

wide_area_alert_notification_for_tolls

This data flow provides alert notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be sent to toll operators to be on the look out for certain conditions. It consists of the following data items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:
None

wide_area_alert_notification_for_traffic

This data flow is sent to the Manage Traffic function to provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be sent to the traffic operations personnel to be on the look out for certain conditions. It consists of the following data items each of which is defined in its own DDE:

list_size + list_size{alert_type
+ alert_severity

+ geographical_area
+ alert_duration}.

Additional Sizing Assumptions:
None

wide_area_alert_notification_for_transit

This data flow is sent to the Manage Transit function to provide notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be sent to transit system operators to be on the look out for certain conditions. It consists of the following data items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:
None

wide_area_alert_notification_for_travelers

This data flow provides alert notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be displayed to travelers. It consists of the following data items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:
None

wide_area_alert_notification_status

This data flow is used within the Manage Transit function and contains the status of a wide area alert that has been detected in the transit operations area. This incident may be a potential security problem, but it is up to the transit system operator to decide what responsive action can be initiated. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ wide_area_alert_notification_for_transit.

Additional Sizing Assumptions:
None

wide_area_alerts_for_response

This data flow provides the response to an alert notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction to be displayed to travelers. It consists of the following data items each of which is defined in its own DDE:

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

Additional Sizing Assumptions:
None

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 Center (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}.

Additional Sizing Assumptions:
SIZE=pollution_state_area_collection+list_size
+POLLUTION_POINTS{pollution_state_roadside_collection};

winter_dispatch_orders_to_mcv

This data is used within the Manage Maintenance and Construction function and contains dispatch information from the vehicle fleet manager to the maintenance and construction vehicle for winter conditions. The data flow consists of the following data items each of which is defined in its own DDE:

m_and_c_center_identity
+ vehicle_id_for_mcv
+ time
+ date
+ mcv_winter_dispatch_instructions.

Additional Sizing Assumptions:
None

winter_maint_action_req_from_traffic

This data flow is sent by the Manage Traffic function to the Manage Maintenance and Construction function and contains a request for action. This includes a request for treatment of icy roads, and other winter roadway treatment. .

Additional Sizing Assumptions:
SIZE=8;

winter_treatment_plan

This data flow consists of the selected winter maintenance treatment plan, including the type of activity to be performed, schedule, etc. and is provided to assist the maintenance and construction activities scheduling function.
.

Additional Sizing Assumptions:
SIZE=128;

work_zone_activity_data

This data flow needs a definition. The data flow consists of the following items each of which is defined in its own DDE:

work_zone_activity_plan
+ map_data_for_m_and_c_wz_status_display
+ work_zone_device_operator_control
+ center_control_of_on_board_work_zone_devices
+ work_zone_data_collection_parameters
+ work_zone_info_distribution_parameters.

Additional Sizing Assumptions:
None

work_zone_activity_plan

This data flow is used within the Manage Maintenance and Construction function and contains the work activity schedule for use by construction activities in work zones. This flow includes the schedule, work activity to be performed, the site location, and any special instructions. .

Additional Sizing Assumptions:
SIZE=256;

work_zone_activity_status

This DFD flow represents the data flows from Control Work Zone Activity to Manage Work Zone Data and includes intrusion alert information collected from on-board a M&C vehicle in a work zone. It consists of the following data items each of which is defined in its own DDE:

work_zone_device_status
+ on_board_work_zone_device_status
+ on_board_work_zone_device_status_for_operator
+ roadside_crew_warning_given
+ work_zone_warning_given_on_board.

Additional Sizing Assumptions:
None

work_zone_data_collection_parameters

This data flow contains parameters to define how the work zone data is collected and formatted, aggregated, or filtered for distribution. .

Additional Sizing Assumptions:
SIZE=64;

work_zone_data_for_archive

This data flow contains data that describes the current status of work zone activities, including work status, resource status, device status, and sensor data. This status is created for later archival and it consists of the following data item which is defined in its own DDE:

work_zone_data_for_status.

Additional Sizing Assumptions:
None

work_zone_data_for_archive_attributes

This data flow is used to provide meta data included with maintenance and construction work zone data for release to the archive. Items of meta data may include attributes that describe the source and quality of the data and the

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

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

Additional Sizing Assumptions:
None

work_zone_data_for_display

This data flow contains a status of work zone data and activity that can be formatted for display to the maintenance and construction center personnel. This data flow consists of data formatted from the following data flow which is defined by its own DDE:

work_zone_data_for_status.

Additional Sizing Assumptions:
None

work_zone_data_for_distribution

This data flow contains a summary of maintenance and construction work zone activities affecting the road network including the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. The data flows also contains work zone resource status. This data flow consists of data from the following data item which is defined in its own DDE:

work_zone_data_for_status.

Additional Sizing Assumptions:
None

work_zone_data_for_status

This data flow contains an overall status of work zone activity created by combining inputs from work zone devices being monitored or controlled, work zone sensors (such as speed monitoring or intrusion detection sensors) and maintenance and construction field personnel. The data flow also contains work zone plans and work zone information status collected from work zones under the control of other maintenance and construction organizations. This data flow represents the formatting, filtering, and aggregation of these data inputs to create the overall status. .

Additional Sizing Assumptions:
SIZE=128;

work_zone_device_control_data

This DFD flow represents the data flows from Manage Work Zones to Provide Device Control and includes work zone information to be displayed and broadcast. It consists of the following items each of which is defined in its own DDE:

dms_data_from_m_and_c
+ har_data_from_m_and_c
+ dms_data_from_mcv
+ work_zone_info_for_display
+ individual_vehicle_speed_for_display
+ speed_warning_for_display.

Additional Sizing Assumptions:
None

work_zone_device_operator_control

This data flow contains control parameters sent from the maintenance and construction center personnel for traffic surveillance or driver information devices that have been installed in work zones or maintenance areas. The devices controlled include closed circuit TV, dynamic message signs, and highway advisory radio. These parameters may cover things such as device configuration or device reset. For the cctv the control flow also includes pan, tilt, and zoom plus other picture controls. .

Additional Sizing Assumptions:
SIZE = 8;

work_zone_device_status

This data flow contains the status of all roadside devices monitored or controlled by the maintenance and construction management function. These devices include dynamic message signs, highway advisory, radios, closed circuit television cameras, intrusion detection devices, and intrusion alert devices. The data flow provides configuration data on the devices as well as device fault indication. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{device_identity
    + device_fault
    + device_status}.

Additional Sizing Assumptions:
None

work_zone_device_status_for_display

This data flow contains the status of all roadside devices monitored or controlled by the maintenance and construction management function. These devices include dynamic message signs, highway advisory, radios, closed circuit television cameras, intrusion detection devices, and intrusion alert devices. The data flow provides configuration data on the devices as well as device fault indication. It consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{device_identity
    + device_fault
    + device_status}.

Additional Sizing Assumptions:
None

work_zone_equipment_status

This data flow contains the status of maintenance and construction equipment assigned to a specific work zone. Each equipment status would also contain an equipment identifier. .

Additional Sizing Assumptions:
SIZE=8;

work_zone_identifier

This data flow contains an identifier that is assigned to a particular work zone for status and reporting purposes. .

Additional Sizing Assumptions:
SIZE=4;

work_zone_images

This data flow contains a high resolution digitized image of a portion of a work zone taken from a particular point on the road or freeway network. .

Additional Sizing Assumptions:
SIZE=MPEG{ftrf-traffic_images};

work_zone_images_for_display

This data flow contains digitized images of activities in work zones. This data flow consists of data from the following data items which are defined in their own DDE:

work_zone_images
+ fomcm-work_zone_images
+ work_zone_intrusion_video_image.

Additional Sizing Assumptions:
None

work_zone_images_for_distribution

This data flow contains digitized images of activities in work zones. This data flow consists of data from the following data items which are defined in their own DDE:

work_zone_images

+ fomcm-work_zone_images
+ work_zone_intrusion_video_image.

Additional Sizing Assumptions:
None

work_zone_images_for_isp

This data flow contains analog or digitized video images of a work zone that are being released for external viewing, in this case to an information service provider. This data flow consists of data from the following data items which are defined in their own DDE:

work_zone_images
+ fomcm-work_zone_images.

Additional Sizing Assumptions:
None

work_zone_images_for_traffic

This data flow contains analog or digitized video images of a work zone that are being released for external viewing, in this case to a traffic management agency. This data flow consists of data from the following data items which are defined in their own DDE:

work_zone_images
+ fomcm-work_zone_images.

Additional Sizing Assumptions:
None

work_zone_incident_data

This DFD flow represents the data flows from Manage Work Zones to Manage Incidents and includes images and data from work zones. It consists of the following items each of which is defined in its own DDE:

video_control_from_m_and_c
+ work_zone_images_for_traffic
+ work_zone_info_for_traffic.

Additional Sizing Assumptions:
None

work_zone_info_distribution_parameters

This data flow contains parameters to define how the work zone information is formatted, aggregated, or filtered for distribution to various organizations outside of the manage maintenance and construction function. .

Additional Sizing Assumptions:
SIZE=64;

work_zone_info_for_display

This data flow contains work zone information for display on roadway information devices. This information includes the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. .

Additional Sizing Assumptions:

SIZE=1024;

work_zone_info_for_emergency

This data flow contains a summary of maintenance and construction work zone activities that have been tailored for providing to an emergency management organization. This information includes the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. The data flows also contains work zone resource status. This data flow consists of data from the following data item which is defined in its own DDE:

work_zone_data_for_status.

Additional Sizing Assumptions:
None

work_zone_info_for_isp

This data flow contains a summary of maintenance and construction work zone activities that have been tailored for providing to a traveler information organization. This information includes the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. This data flow consists of data from the following data item which is defined in its own DDE:

work_zone_data_for_status.

Additional Sizing Assumptions:
None

work_zone_info_for_operator_display

This data flow contains a summary of the work zone information being provided to other organizations. The data flow represents the information that will be formatted for display to the maintenance and construction center personnel. .

Additional Sizing Assumptions:
SIZE=1024;

work_zone_info_for_traffic

This data flow contains a summary of maintenance and construction work zone activities that have been tailored for providing to a traffic management organization. This information includes the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. The data flows also contains work zone resource status. This data flow consists of data from the following data item which is defined in its own DDE:

work_zone_data_for_status.

Additional Sizing Assumptions:
None

work_zone_info_for_transit

This data flow contains a summary of maintenance and construction work zone activities that have been tailored for providing to a transit management organization. This information includes the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. This data flow consists of data from the following data item which is defined in its own DDE:

work_zone_data_for_status.

Additional Sizing Assumptions:
None

work_zone_intrusion_alert

This data flow contains a time stamped indication that a work zone intrusion alert has been generated. The data flow could also identify the form in which the alert was given (e.g. audible warning, visual warning, or in-vehicle warning) .

Additional Sizing Assumptions:
SIZE=16;

work_zone_intrusion_alert_on_board

This data flow contains a time stamped output of an on-board intrusion alert device indicating that an intrusion alert has been given to field personnel. .

Additional Sizing Assumptions:
SIZE=8;

work_zone_intrusion_alert_on_board_for_in_vehicle_signing

This data flow contains data for use in producing an in-vehicle signage display that provides as alert that the vehicle is approaching too fast, or is too close to a maintenance and construction vehicle. .

Additional Sizing Assumptions:
SIZE=16;

work_zone_intrusion_control

This DFD flow represents the data flows from Control Work Zone Activity to Manage Work Zone Intrusion Warning and includes intrusion alert and detection device control. It consists of the following data items each of which is defined in its own DDE:

intrusion_detection_device_control
+ intrusion_alert_device_control
+ on_board_intrusion_detection_device_control
+ intrusion_alert_device_control_on_board.

Additional Sizing Assumptions:
None

work_zone_intrusion_data

This DFD flow represents the data flows from Manage Work Zone Intrusion Warning to Manage Work Zone Data and includes intrusion and alert information. It consists of the following data items each of which is defined in its own DDE:

work_zone_intrusion_detected
+ work_zone_intrusion_alert
+ work_zone_intrusion_detected_on_board
+ work_zone_intrusion_alert_on_board.

Additional Sizing Assumptions:

None

work_zone_intrusion_detected

This data flow contains an indication from an intrusion detection sensor that an intrusion into the perimeter of the work zone has occurred. It consists of the following data items each of which is defined in its own DDE:

device_identity
+ intrusion_detection_device_output.

Additional Sizing Assumptions:
None

work_zone_intrusion_detected_on_board

This data flow contains the time stamped output of an on-board intrusion detection device indicating that an intrusion has been detected. It consists of the following data items each of which is defined in its own DDE:

device_identity
+work_zone_intrusion_detection_on_board.

Additional Sizing Assumptions:
None

work_zone_intrusion_detection

This data flow contains a time stamped indication that a work zone intrusion has been detected by an intrusion detection sensor. .

Additional Sizing Assumptions:
SIZE=16;

work_zone_intrusion_detection_for_on_board

This data flow contains the output of an intrusion detection device indicating that an intrusion of the work zone perimeter has been detected. This intrusion detection from a roadside device is sent to a process on-board a maintenance and construction vehicle. It consists of the following data items each of which is defined in its own DDE:

device_identity
+ intrusion_detection_device_output.

Additional Sizing Assumptions:
None

work_zone_intrusion_detection_on_board

This data flow contains the time stamped output of an on-board intrusion detection device indicating that an intrusion has been detected. .

Additional Sizing Assumptions:
SIZE=8;

work_zone_intrusion_detection_on_board_output

This data flow contains the output of an intrusion detection device indicating that an intrusion of the work zone perimeter has been detected. It consists of the following data items each of which is defined in its own DDE:

device_identity
+ intrusion_detection_device_output.

Additional Sizing Assumptions:
None

work_zone_intrusion_detection_output

This data flow contains the output of an intrusion detection device indicating that an intrusion of the work zone perimeter has been detected. It consists of the following data items each of which is defined in its own DDE:

device_identity
+ intrusion_detection_device_output.

Additional Sizing Assumptions:
None

work_zone_intrusion_status

This DFD flow represents the data flows from Manage Work Zone Intrusion Warnings to Control Work Zone Activity and includes intrusion and alert information and device status. It consists of the following data items which is defined in its own DDE:

intrusion_detection_device_status
+ intrusion_alert_device_status
+ work_zone_intrusion_detection_output
+ on_board_intrusion_detection_device_status
+ work_zone_intrusion_detection_on_board_output
+ intrusion_alert_device_status_on_board.

Additional Sizing Assumptions:
None

work_zone_intrusion_video_image

This data flow contains time stamped high resolution digitized video images of a work zone. These images are used to identify that a work zone intrusion has taken place. .

Additional Sizing Assumptions:
SIZE=IMAGE_LARGE;

work_zone_intrusion_warning_notification

This data flow contains a time stamped indication that a work zone intrusion warning has been generated on-board a maintenance and construction vehicle. It consists of the following data items each of which is defined in its own DDE:

work_zone_intrusion_alert_on_board
+ work_zone_warning_given_on_board.

Additional Sizing Assumptions:
None

work_zone_personnel_status

This data flow contains the status of personnel who are currently working in a work zone. The data flow would attach some form of personnel identifier to the status indication. .

Additional Sizing Assumptions:
SIZE=4;

work_zone_resource_status

This data flow contains the status of work zone resources, including personnel, vehicles, and equipment. It consists of the following data items each of which is defined in its own DDE:

work_zone_identifier
+ work_zone_personnel_status
+ work_zone_vehicle_status
+ work_zone_equipment_status.

Additional Sizing Assumptions:
None

work_zone_status_for_display

This data flow is used within the Maintenance and Construction function and contains the current status of work zone activities available on-board the maintenance and construction vehicle. This includes status of intrusion detection or alert devices. This status is created for output to the M&C field personnel inside the maintenance and construction vehicle. .

Additional Sizing Assumptions:
SIZE=64;

work_zone_status_from_mcv

This data flow contains inputs on work zone status provided by the maintenance and construction field personnel on-board a maintenance and construction vehicle. These inputs include field personnel status, vehicle status, and work activity status. The work zone status inputs include current location (and future locations for moving work zones), impact to the roadway, required lane shifts, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. .

Additional Sizing Assumptions:
SIZE=64;

work_zone_status_inputs

This data flow contains inputs on work zone status provided by the maintenance and construction field personnel on-board a maintenance and construction vehicle. These inputs include field personnel status, vehicle status, and work activity status. .

Additional Sizing Assumptions:
SIZE=64;

work_zone_surveillance_data

This DFD flow represents the data flows from Manage Work Zones to Provide Traffic Surveillance and includes information from a work zone, including video images and speed data. It consists of the following items each of which is defined in its own DDE:

work_zone_images_for_isp
+ work_zone_info_for_isp
+ speed_data_for_traffic_status
+ speed_data_for_traffic_display
+ t_other_rw_speed_warning_to_dms
+ t_other_rw_individual_vehicle_speed_to_dms
+ t_other_rw_work_zone_intrusion_detection.

Additional Sizing Assumptions:
None

work_zone_to_roadway_m_and_c

This DFD flow represents the data flows from Manage Work Zones to Manage Roadway M&C Activities and includes work zone status information. It consists of the following items each of which is defined in its own DDE:

work_zone_device_status_for_display
+ work_zone_data_for_status
+ work_zone_images_for_display
+ request_m_and_c_wz_status_display_update
+ work_zone_data_for_display
+ work_zone_info_for_operator_display
+ speed_data_for_m_and_c_display.

Additional Sizing Assumptions:
None

work_zone_vehicle_status

This data flow contains the status of maintenance and construction vehicles at a specific work zone. The data flow would also contain a vehicle identifier. .

Additional Sizing Assumptions:
SIZE=8;

work_zone_warning_given_on_board

This data flow contains a time stamped indication that an on-board device monitoring crew movements has generated an intrusion warning alert. The data flow would contain to whom was sent or how it was sent) .

Additional Sizing Assumptions:
SIZE = 16;

wrong_way_vehicle

This data flow within the Manage Traffic function contains data about wrong-way vehicles detected in reversible lanes for use by the traffic operations personnel in identifying and verifying incidents. It consists of the following data items each of which is defined in its own DDE:

vehicle_identity
+ vehicle_license
+ incident_video_image
+ traffic_video_image
+ vehicle_detection_data.

Additional Sizing Assumptions:
None

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.

Additional Sizing Assumptions:
None

yellow_pages_advisory_data

This data flow is used within the Provide Driver and Traveler Services function to provide yellow pages data to drivers and travelers (including users of the transit system) 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.

Additional Sizing Assumptions:
None

yellow_pages_advisory_requests

This data flow is used within the Provide Driver and Traveler Services function to request that data about yellow pages services be output to a driver or a traveler (including a user of the transit system) in a vehicle or that a yellow pages services reservation be made. The scope and transit route number data will be provided by the driver or traveler, while 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_non_motorized_reservation.

Additional Sizing Assumptions:
None

yellow_pages_advisory_requests_for_archive

This data flow is used within the Provide Driver and Traveler Services function. It is used to provide data to the data archive about requests for yellow pages services to be output to a driver or a traveler (including a user of the transit system) 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.

Additional Sizing Assumptions:
None

yellow_pages_cost

This data flow is used within the Provide Driver and Traveler 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 traveler. The data flow consists of the following data item which is defined in its own DDE:

cost.

Additional Sizing Assumptions:
None

yellow_pages_data

This data flow is used within the Provide Driver and Traveler Services function to provide information on yellow pages (other) services that are currently available to the traveler. 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.

Additional Sizing Assumptions:
None

yellow_pages_data_511_request

This data flow is used within the Provide Driver and Traveler Services function and contains a request for data on other (yellow pages) services to be sent to a 511 traveler information system for the region specified. The data flow consists of the following data items each of which is defined in its own DDE:

yellow_pages_traveler_request
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
None

yellow_pages_data_for_511

This data flow is used within the Provide Driver and Traveler Services function and contains details of other (yellow pages) services which is to be sent to a 511 traveler information system. The data flow consists of the following data items each of which is defined in its own DDE:

yellow_pages_general_information
+ yellow_pages_specific_information
+ region_identity
+ information_request_id.

Additional Sizing Assumptions:
SIZE=region_identity + information_request_id + 0.01{yellow_pages_general_information
+yellow_pages_specific_information);

yellow_pages_data_for_advisories

This data flow is used within the Provide Driver and Traveler Services function to provide yellow pages (other services) advisory data to drivers and travelers 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}.

Additional Sizing Assumptions:
SIZE=list_size+YP_LOCAL_ITEMS{yellow_pages_service_detail};

yellow_pages_data_request

This data flow is used within the Provide Driver and Traveler Services function and is used to request the Manage Yellow pages Services facility to provide data on yellow pages (other) services. .

Additional Sizing Assumptions:
SIZE=16;

yellow_pages_dining_information

This data flow is used within the Provide Driver and Traveler Services function and contains details of those restaurants, diners, etc. in the area served by the function, with dates and prices of available seats. The type 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}.

Additional Sizing Assumptions:
SIZE=list_size+YP_GLOBAL_ITEMS{yellow_pages_service_detail};

yellow_pages_dining_reservation

This data flow is used within the Provide Driver and Traveler Services function and contains a request for the information and service providers to make a dining reservation at a restaurant, hotel, etc. The reservation will be based on the data already provided to the traveler through a previous request. .

Additional Sizing Assumptions:
SIZE=16;

yellow_pages_dining_reservation_confirmation

This data flow is used within the Provide Driver and Traveler Services function. It contains a massage to say that a dining reservation is confirmed and includes a confirmation number. The data flow consists of the following items each of which is defined in its own DDE:

confirmation_flag
+ yellow_pages_service_reservation_number.

Additional Sizing Assumptions:
None

yellow_pages_emergency_update

This data flow is used within the Provide Driver and Traveler Services function and contains updates to information on yellow pages services as situations change during an emergency - adjustments to availability of services, changes in hours, etc. .

Additional Sizing Assumptions:
SIZE=1024;

yellow_pages_food

This data flow is used within the Provide Driver and Traveler Services function and contains details of restaurants, fast food outlets, etc. in the area served by the function, including the type of food and the chain (if applicable) and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

Additional Sizing Assumptions:
SIZE=list_size+YP_GLOBAL_ITEMS{yellow_pages_service_type+yellow_pages_service_contact
+yellow_pages_service_description+yellow_pages_service_location};

yellow_pages_gas_stations

This data flow is used within the Provide Driver and Traveler Services function and contains details of gas stations in the area served by the function, including the facilities available at the gas station, e.g. toilets, shop, food, the type(s) of fuel supplied, etc. and the gas supplier chain(s) and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

Additional Sizing Assumptions:
SIZE=list_size+YP_GLOBAL_ITEMS{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 Traveler Services function. It contains the following items the contents of which will be specific to the area covered by the function and which will include contact telephone numbers, etc. Each of them is defined in its own DDE:

yellow_pages_history
+ yellow_pages_local_customs
+ yellow_pages_people.

Additional Sizing Assumptions:
None

yellow_pages_history

This data flow is used within the Provide Driver and Traveler 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. Civil War 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_service_time}.

Additional Sizing Assumptions:
SIZE=list_size+YP_GLOBAL_ITEMS{yellow_pages_service_type+yellow_pages_service_contact
+yellow_pages_service_description+yellow_pages_service_location
+yellow_pages_service_time};

yellow_pages_hospitals

This data flow is used within the Provide Driver and Traveler Services function and contains details of location(s), available facilities and visiting hours of hospitals by type, e.g. general human, human specialty (eye, skin, maternity, etc.), veterinary, etc. in the area served by the function. The data will include the type of hospital and the opening times and visiting hours plus the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

Additional Sizing Assumptions:
SIZE=list_size+YP_GLOBAL_ITEMS{yellow_pages_service_type+yellow_pages_service_contact
+yellow_pages_service_description+yellow_pages_service_location};

yellow_pages_information_data

This data store is used within the Provide Driver and Traveler Services function to hold data about yellow pages information that may be requested by drivers or travelers (including users of the transit system) from on-board vehicles. It consists of the following data item which is defined in its own DDE:

yellow_pages_data.

Additional Sizing Assumptions:
None

yellow_pages_local_customs

This data flow is used within the Provide Driver and Traveler Services function and contains details of local customs, etc., in the area served by the function. The description will define the customs themselves, e.g., the days on which shops close early, etc., while 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}.

Additional Sizing Assumptions:
SIZE=list_size+YP_GLOBAL_ITEMS{yellow_pages_service_type+yellow_pages_service_location
+yellow_pages_service_description};

yellow_pages_lodging

This data flow is used within the Provide Driver and Traveler Services function and contains details of hotels, motels, etc. in the area served by the function, including the type of hotel and the hotel chain (if applicable) and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

Additional Sizing Assumptions:
SIZE=list_size+YP_GLOBAL_ITEMS{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 Traveler 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 traveler through a previous request. .

Additional Sizing Assumptions:
SIZE=16;

yellow_pages_lodging_reservation_confirmation

This data flow is used within the Provide Driver and Traveler Services function. It contains a massage to say that a lodging reservation is confirmed and includes a confirmation number. The data flow consists of the following items each of which is defined in its own DDE:

confirmation_flag
+ yellow_pages_service_reservation_number.

Additional Sizing Assumptions:
None

yellow_pages_lodging_reservations

This data flow is used within the Provide Driver and Traveler Services function and contains details of those hotels, motels, etc. in the area served by the function, with dates and prices of available rooms. The type 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}.

Additional Sizing Assumptions:
SIZE=list_size+YP_GLOBAL_ITEMS{yellow_pages_service_detail};

yellow_pages_new_data_request

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

Additional Sizing Assumptions:
None

yellow_pages_non_motorized_reservation

This data flow is used within the Provide Driver and Traveler Services function and contains a request for the information and service providers to make a lodging reservation at a non-motorized transportation service provider, service station, etc. The reservation will be based on the data already provided to the traveler through a previous request. .

Additional Sizing Assumptions:
SIZE=16;

yellow_pages_non_motorized_services

This data flow is used within the Provide Driver and Traveler Services function and contains details of non-motorized transportation services in the area served by the function. Detail may include the type of repair shop, the type(s) of repair facilities that are available, e.g. general servicing, tires, etc. and the repair shop chain (if applicable) and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{yellow_pages_service_type
    + yellow_pages_service_contact
    + yellow_pages_service_description
    + yellow_pages_service_location}.

Additional Sizing Assumptions:
SIZE=list_size+YP_GLOBAL_ITEMS{yellow_pages_service_type+yellow_pages_service_contact
    +yellow_pages_service_description+yellow_pages_service_location};

yellow_pages_output

This data flow is used within the Provide Driver and Traveler 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_data.

Additional Sizing Assumptions:
None

yellow_pages_parking

This data flow is used within the Provide Driver and Traveler Services function and contains details of parking lots, on-street parking arrangements, etc. in the area served by the function, including the type parking, e.g. privately managed lot, municipally owned lot, free parking, on-street parking, etc. and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size

+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

Additional Sizing Assumptions:
SIZE=list_size+YP_GLOBAL_ITEMS{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 Traveler 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}.

Additional Sizing Assumptions:
SIZE=list_size+YP_GLOBAL_ITEMS{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 Traveler Services function and contains details of vehicle parts shops in the area served by the function, including character code will define the type of vehicle parts available, e.g. engines, brakes, tires, mufflers, etc. and the repair shop chain (if applicable) and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

Additional Sizing Assumptions:
SIZE=list_size+YP_GLOBAL_ITEMS{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 Traveler Services function and contains details of repair shops in the area served by the function, including the type of repair shop, the type(s) of repair facilities that are available, e.g. general servicing, engines, brakes, tires, mufflers, etc. and the repair shop chain (if applicable) and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

Additional Sizing Assumptions:

SIZE=list_size+YP_GLOBAL_ITEMS{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. .

Additional Sizing Assumptions:
SIZE=128;

yellow_pages_reservation_confirmation

This data flow is used within the Provide Driver and Traveler Services function to confirm any reservations made by the traveler. It contains the following data items, each of which is defined in its own DDE:

transaction_number
+ traveler_identity
+ yellow_pages_cost
+ yellow_pages_dining_reservation_confirmation
+ yellow_pages_lodging_reservation_confirmation
+ yellow_pages_ticket_purchase_confirmation.

Additional Sizing Assumptions:
None

yellow_pages_reservation_request

This data flow is used within the Provide Driver and Traveler Services function by the traveler (including a user of the transit system) 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.

Additional Sizing Assumptions:
None

yellow_pages_rest_areas

This data flow is used within the Provide Driver and Traveler Services function and contains details of rest areas adjacent to roads and highways in the area served by the function, including the facilities available at the rest area, e.g. toilets, food, etc. and any private operators that provide on-site services and the address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

Additional Sizing Assumptions:
SIZE=list_size+YP_GLOBAL_ITEMS{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 Traveler 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 if they are all sold, a range of services provided by a garage, a list of codes for attractions at a tourist site or special event, a list of available non-motorized transportation service providers, etc. .

Additional Sizing Assumptions:
SIZE=16;

yellow_pages_service_contact

This data flow 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. .

Additional Sizing Assumptions:
SIZE=20;

yellow_pages_service_cost

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

Additional Sizing Assumptions:
None

yellow_pages_service_date

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

Additional Sizing Assumptions:
None

yellow_pages_service_description

This data flow is used within the Provide Driver and Traveler Services function and 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, the address of a non-motorized transportation service provider (e.g. bike rental shop), etc. .

Additional Sizing Assumptions:
SIZE=30;

yellow_pages_service_detail

This data flow is used within the Provide Driver and traveler Services function. It contains details of the providers of those services of whatever type that are relevant to a 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.

Additional Sizing Assumptions:
None

yellow_pages_service_location

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

Additional Sizing Assumptions:
None

yellow_pages_service_provider_area

This data flow contains a list of the geographic area(s) served by an individual yellow pages service provider. .

Additional Sizing Assumptions:
SIZE=50;

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. .

Additional Sizing Assumptions:
SIZE=30;

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. .

Additional Sizing Assumptions:
SIZE=50;

yellow_pages_service_provider_data

This data store contains detailed data about individual yellow pages service providers. 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}.

Additional Sizing Assumptions:
SIZE=list_size+100{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 Traveler 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_area.

Additional Sizing Assumptions:
None

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, travelers, etc. .

Additional Sizing Assumptions:
SIZE=16;

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. .

Additional Sizing Assumptions:
SIZE=30;

yellow_pages_service_provider_registration_request

This data flow is sent from the Provide Driver and Traveler Services function to the Provide Electronic Payment Services function and contains the request for payment of the registration fee for an information and service provider, or other information and service provider, to supply yellow pages data to another process in the Provide Driver and Traveler Services function. The data flow contains the following data item which is defined in its own DDE:

credit_identity
+ yellow_pages_service_provider_identity.

Additional Sizing Assumptions:
None

yellow_pages_service_provider_registration_response

This data flow is sent from the Provide Electronic Payment Services function to the Provide Driver and Traveler Services function and contains the response to a previous request for payment of the registration fee for a yellow pages service provider to supply yellow pages data to another process in the Provide Driver and Traveler Services function. The data flow consists of the following data items each of which is defined in its own DDE:

confirmation_flag
+ yellow_pages_service_provider_identity.

Additional Sizing Assumptions:
None

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. .

Additional Sizing Assumptions:
SIZE=3;

yellow_pages_service_time

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

Additional Sizing Assumptions:
None

yellow_pages_service_type

This data flow is used within the Provide Driver and Traveler Services function to define the type of yellow pages service that is being provided. It will comprise but not be limited to hotel, motel, travel lodge, restaurant, take away, diner, theater, concert, stage show, National Football League Game, and National Hockey League Game, or non-motorized transportation service. .

Additional Sizing Assumptions:
SIZE=3;

yellow_pages_special_events

This data flow is used within the Provide Driver and Traveler Services function and contains details of special events such as parades, fairs, exhibitions, conventions, etc. in the area served by the function. Details may include the type of event and the organizer(s) and address at which the event will take place. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{yellow_pages_service_type
    + yellow_pages_service_contact
    + yellow_pages_service_description
    + yellow_pages_service_location}.

Additional Sizing Assumptions:
SIZE=list_size+YP_GLOBAL_ITEMS{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 Traveler Services function. It contains information which will be specific to the area covered by the function and which will

include details of what facilities are currently available for purchase, etc. The data flow consists of the following items each of which is defined in its own DDE:

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_tourist_services
+ yellow_pages_non_motorized_services
+ yellow_pages_emergency_update.

Additional Sizing Assumptions:
None

yellow_pages_ticket_information

This data flow is used within the Provide Driver and Traveler Services function and contains details of those activities, services etc. for which tickets are required in the area served by the function, with dates and prices. The type 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}.

Additional Sizing Assumptions:
SIZE=list_size+YP_GLOBAL_ITEMS{yellow_pages_service_detail};

yellow_pages_ticket_purchase

This data flow is used within the Provide Driver and Traveler Services function and contains a request for the information and service providers to make a ticket purchase for a special event, theater, tourist attraction, etc. from the information already provided to the traveler through a previous request. .

Additional Sizing Assumptions:
SIZE=16;

yellow_pages_ticket_purchase_confirmation

This data flow is used within the Provide Driver and Traveler Services function. It contains a massage to say that a ticket purchase is confirmed and includes a confirmation number. The data flow consists of the following items each of which is defined in its own DDE:

confirmation_flag
+ yellow_pages_service_reservation_number.

Additional Sizing Assumptions:
None

yellow_pages_tourist_activities

This data flow is used within the Provide Driver and Traveler Services function and contains details of tourist specific activities in the area served by the function, including the type of activity and the address at which the activity will take place. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location
+ yellow_pages_service_time}.

Additional Sizing Assumptions:
SIZE=list_size+YP_GLOBAL_ITEMS{yellow_pages_service_type+yellow_pages_service_contact
+yellow_pages_service_description+yellow_pages_service_location
+yellow_pages_service_time};

yellow_pages_tourist_services

This data flow is used within the Provide Driver and Traveler Services function and contains details of travel agents in the area served by the function, including the service(s) provided by the agent and the agent's address. The data flow consists of the following data items each of which is defined in its own DDE:

list_size
+ list_size{yellow_pages_service_type
+ yellow_pages_service_contact
+ yellow_pages_service_description
+ yellow_pages_service_location}.

Additional Sizing Assumptions:
SIZE=list_size+YP_GLOBAL_ITEMS{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 Traveler Services function. It contains information which will be specific to the area covered by the function and which will include details of what facilities are currently available for purchase, etc. The data flow consists of the following items each of which is defined in its own DDE:

yellow_pages_lodging_reservations
+ yellow_pages_dining_information
+ yellow_pages_ticket_information.

Additional Sizing Assumptions:
None

yellow_pages_traveler_request

This data flow contains a request for data on other (yellow pages) services to be sent to a traveler. .

Additional Sizing Assumptions:
SIZE=1;

yellow_pages_update_request

This data flow is used within the Provide Driver and Traveler Services function to request an update of the yellow pages data currently available to travelers. The source of the data request may be specified as either the local suppliers (the information and service provider terminator) or suppliers outside the immediate ITS geographic area of operation (the other information and service provider terminator). .

Additional Sizing Assumptions:
SIZE=2;

yellow_pages_update_response

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

Additional Sizing Assumptions:
None