

Appendix J – Information Flow Definitions

Information Flow	Flow Definition
Access Permission	Information returned indicating whether permission for access is granted and instructions for proceeding.
Access Request	Request for access to an access-controlled transportation facility.
Accident Report	Report on commercial vehicle safety accident. The information may be provided as a response to a real-time query or proactively by the source. The query flow is not explicitly shown.
Air Quality Information	Aggregated region-wide measured air quality data and possible pollution incident information.
Alarm	Information about a Commercial Vehicle or Freight Equipment breach, non-permitted security sensitive hazmat detected at the roadside, route deviation, or Commercial Vehicle Driver / Commercial Vehicle / Freight Equipment assignment mismatches which includes the location of the Commercial Vehicle and appropriate identities.
Alarm Acknowledge	Confirmation that alarm was received, instructions and additional information for the alarm initiator, and requests for additional information.
Alarm Notification	Notification of activation of an audible or silent alarm by a traveler in a public area or by a transit vehicle operator using an on-board device.
Alert Notification	Notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction for distribution to the public. The flow identifies the alert originator, the nature of the emergency, the geographic area affected by the emergency, the effective time period, and information and instructions necessary for the public to respond to the alert. This flow may also identify specific information that should not be released to the public.
Alert Notification Coordination	Coordination of emergency alerts to be distributed to the public. This includes notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction for distribution to the public and status of the public notification.
Alert Response	This flow represents the tactile or auditory interface with ITS equipment. It contains the response by a Commercial Vehicle Driver or Fleet-Freight Manager that confirms or cancels an alert.
Alert Status	Information indicating the current status of the emergency alert including identification of the traveler and driver information systems that are being used to provide the alert.
Alerts	This flow represents the visual or auditory interface with ITS equipment containing specific alerts and messages related to commercial vehicles (e.g., trucks not advised, trucks over 10 tons not allowed on bridge, route details). This also includes detected route deviations and warning indications detected by on-board sensors (e.g., safety) and freight equipment sensors (e.g., breach, cargo).
Alerts and Advisories	Assessments (general incident and vulnerability awareness information), advisories (identification of threats or

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	recommendations to increase preparedness levels), and alerts (information on imminent or in-progress emergencies). This flow also provides supporting descriptive detail on incidents, threats, and vulnerabilities to increase preparedness and support effective response to threats against the surface transportation system.
Archive Analysis Requests	A user request that initiates data mining, analytical processing, aggregation or summarization, report formulation, or other advanced processing and analysis of archived data. The request also includes information that is used to identify and authenticate the user and support electronic payment requirements, if any.
Archive Analysis Results	Processed information products, supporting meta data, and any associated transaction information resulting from data mining, analytical processing, aggregation or summarization, report formulation, or other on-line processing and analysis of archived data.
Archive Coordination	Catalog data, meta data, published data, and other information exchanged between archives to support data synchronization and satisfy user data requests.
Archive Management Data	Presentation of information to the administrator to support the management of an ITS archive including database reports on the condition and quality of the archived data, status of the import and collection process, reports that monitor archive usage, and any special requests that require direct action by the administrator (e.g., requests for access to new data sources).
Archive Management Requests	User input from the administrator including commands, requests, and queries that support data collection, administration, and management of an ITS data archive.
Archive Request Confirmation	Confirmation that an archive request has been received and processed with information on the disposition of the request.
Archive Requests	A request to a data source for information on available data (i.e., "catalog") or a request that defines the data to be archived. The request can be a general subscription intended to initiate a continuous or regular data stream or a specific request intended to initiate a one-time response from the recipient.
Archive Status	Notification that data provided to an archive contains erroneous, missing, or suspicious data or verification that the data provided appears valid. If an error has been detected, the offending data and the nature of the potential problem are identified.
Archived Data Product Requests	A user-specified request for archived data products (i.e., data, meta data, or data catalogs). The request also includes information that is used to identify and authenticate the user and support electronic payment requirements, if any.
Archived Data Products	Raw or processed data, meta data, data catalogs and other data products provided to a user system upon request. The response may also include any associated transaction information.
Area Pollution Data	Measured air quality data, including measured levels of atmospheric pollutants including ozone, particulate matter,

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	carbon monoxide, and nitrogen oxides, and operational status of the sensors.
Arrival Notification	Notification of arrival (and departure) of a motor vehicle at the inspection station.
Arriving Train Information	Information for a train approaching a highway-rail intersection that may include direction and allow calculation of approximate arrival time and closure duration.
Asset Archive Data	Information describing transportation assets including pavements, bridges, and all other infrastructure included in the transportation network. In addition, information can cover support assets (support equipment and systems, software, etc.). Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.
Asset Damage Assessment	Information indicating the damage sustained by transportation assets, derived from aerial surveillance, field reports, inspections, tests, and analyses.
Asset Inventory	Information on pavement, bridges, signs, and other assets. This includes asset location, installation information, materials information, vendor/contractor information, current maintenance status, and a variety of other information (e.g., video logs) that define the transportation infrastructure.
Asset Restrictions	Restrictions levied on transportation asset usage based on infrastructure design, surveys, tests, or analyses. This includes standard height, width, and weight restrictions by facility as well as special restrictions such as spring weight restrictions and temporary bridge weight restrictions.
Asset Status Update	Changes to status of pavement, bridges, signs, and other assets resulting from maintenance or construction activities or infrastructure monitoring. The updates may include changes in installation information, materials information, vendor/contractor information, condition, and current maintenance status. In addition to infrastructure asset updates, the information provided may also include status of the maintenance and construction support assets, including vehicle and equipment utilization and repair records.
Audit Data	Information to support a tax audit.
Automated Roadway Control Data	Control commands and operating parameters provided to field equipment that controls and monitors automated vehicle operations.
Automated Roadway Status	Current operational status of an automated vehicle operations facility, including the status of the field equipment and vehicles using the facility.
Automated Vehicle Control Data	Instructions and control parameters for automated vehicle operation including current system conditions and advisories, control parameters (e.g., speed and performance profiles,

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	headways), maneuver coordination, and check in-checkout instructions.
Automated Vehicle Status	Data provided by an automated vehicle identifying its current mode and operational status, current position and motion, preferred route, and information provided to support checking/checkout and coordinated maneuvers while on the automated facility.
Bad Tag List	List of invalid transit user tags which may have previously failed a fare payment transaction.
Barrier System Control	Information used to configure and control barrier systems that are represented by gates, barriers and other automated or remotely controlled systems used to manage entry to roadways.
Barrier System Status	Current operating status of barrier systems. Barrier systems represent gates, barriers and other automated or remotely controlled systems used to manage entry to roadways. Status of the systems includes operating condition and current operational state.
Basic Transit Vehicle Controls	Control signal disabling or enabling transit vehicle sent as a result of a transit vehicle operator authentication action or a remote disable command.
Basic Vehicle Measures	Information provided to on-board ITS equipment from the vehicle platform indicating current vehicle status.
Boarding and Alighting	Detection of transit passenger boarding and alighting. This flow represents the travelers' physical presence as they board a transit vehicle that can be detected or monitored by on-board sensors.
Booking Status	Status of the freight transport booking that includes the identities of the Commercial Vehicle and driver who will pick up the freight or a request for more information from the originator.
Border Agency Clearance Results	Notification regarding the granting of permission for commercial freight shipment to enter the U.S.
Border Clearance Data	Trip specific data regarding the movement of goods across international borders. Includes trip identification number. May also include results from recent border crossing screening events.
Border Clearance Data Request	Request for trip specific data regarding the movement of goods across international borders. Includes trip identification number. May also include results from recent border crossing screening events.
Border Clearance Event	Reports clearance event data regarding action taken at border, including acceptance or override of system decision, and date/time stamp.
Border Clearance Status	Notification regarding the crossing status of commercial freight shipment scheduled to enter the U.S. Includes portions of border agency and transportation agency clearance results, as those results become available.
Border Crossing Status Information	Port of entry status including current wait-times, lane configuration and status including closures and restrictions, and notification of incidents at the border.

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Border Incident Information	Notification of existence of incident in the vicinity of the border. Information would include expected severity, location, time, and nature of incident. As additional information is gathered and the incident evolves, updated incident information is provided.
Border Incident Response Status	Status of the current incident response at a border crossing, including a summary of incident status and its impact on the transportation system, traffic management strategies implemented at the site (e.g., closures, diversions, traffic signal control overrides), and current and planned response activities.
Border Information Archive	Border inspection activities data. Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.
Border Pass/Pull-in	Command to commercial vehicle to pull into or bypass border inspection station.
Border Wait Times Archived Data	Wait time data to be archived and used for planning and analysis activities.
Border Wait Times Data	Measure of current, actual, or predicted wait time at border. Measurement provided by vehicle type, lane, and type of lane (e.g., NEXUS vs. regular).
Breach Response	This is an Intermodal Freight Shipper's response to a breach or tamper event of their freight equipment. There may be instructions for handling of the shipment, possible re-routing or pickup.
Broadcast Advisories	General broadcast advisories that are provided over wide-area wireless communications direct to the vehicle radio. These analog advisory messages may provide similar content to ITS broadcast information flows but include no digital data component. Existing Highway-Advisory Radio (HAR) advisory messages are a prime example of this flow.
Broadcast Traveler Information	General traveler information that contains traffic and road conditions, link travel times, incidents, advisories, restrictions, vehicle requirements, work zones, transit service information, weather information, parking information, and other related traveler information.
Care Facility Status	Information regarding facility type and capabilities, facility status, and its ability to admit new patients.
Care Facility Status Request	Request for information regarding care facility availability to accept the transported patient and status including information on ambulance queues or other information that may impact the care facilities ability to accept the patient in a timely fashion.
Carrier Participation Report	Report that summarizes motor carrier participation in CVO programs. Used to identify the level of active participation and to report which enrolled carriers are not participating as expected.
Citation	Report of commercial vehicle citation. The citation includes references to the statute(s) that was (were) violated. It includes information on the violator and the officer issuing the citation. A citation differs from a violation because it is adjudicated by the courts. The information may be provided as a response to a real-

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	time query or proactively by the source. The query flow is not explicitly shown.
Clearance Notification	Notification that cargo has been cleared through customs.
Client ID	A common identification number that can be used by all BIFA agencies and organizations to reference the carrier.
Client Verification Information	Information about carriers who have made border credential applications such as commercial driver's license information and carrier safety status.
Client Verification Request	Request for information such as commercial driver's license information and carrier safety status.
Commercial Vehicle Archive Data	Information describing commercial vehicle travel and commodity flow characteristics. Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.
Commercial Vehicle Breach	Information about a breach or tamper event on a Commercial Vehicle or its attached freight equipment which includes identity, type of breach, location, and time.
Commercial Vehicle Data	Information about the commercial vehicle's cargo, credentials, and payments.
Commercial Vehicle Data Request	Requests from the vehicle for information about the commercial vehicle's cargo, credentials, and payments.
Commercial Vehicle Disable	This flow safely disables a specific commercial vehicle.
Commercial Vehicle Disable Status	This flow provides the status of the disabled flag in the commercial vehicle.
Commercial Vehicle Measures	Commercial vehicle and driver status measured by on-board ITS equipment.
Commercial Vehicle Permit	Commercial vehicle permits including those for oversize, overweight, or hazmat shipments.
Commercial Vehicle Permit Coordination	Information for the coordination of commercial vehicle permits for oversize, overweight, or for dangerous goods.
Commercial Vehicle Permit Information	Information for commercial vehicle permits for oversize, overweight, or for dangerous goods. The query flow is not explicitly shown.
Compliance Review Report	Report containing results of carrier compliance review, including concomitant out-of-service notifications, carrier warnings/notifications. The information may be provided as a response to a real-time query of proactively by the source. The query flow is not explicitly shown.
Credential Application	Application for commercial vehicle credentials. Authorization for payment is included. It contains details about the administrative request for a Freight Vehicle registration. It also carries the acknowledgement that a payment has been placed in the bank account of the administration by the Fleet Operator. This information flow includes fleet operator request ID, vehicle characteristics, transport need (origin and destination), electronic signature and date of payment.
Credential Fee Coordination	Description of fees, taxes and similar charges related to commercial vehicle credentials. In US and Canada, this includes

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	rates for credentials that are exchanged between agencies via IRP, IFTA, etc.
Credentials Information	Response containing full vehicle fuel tax and registration credentials information. "Response" may be provided in reaction to a real-time query or a standing request for updated information. The query flow is not explicitly shown.
Credentials Status information	Credentials information such as registration, licensing, insurance, check flags, and electronic screening enrollment data. A unique identifier is included. Corresponds to the credentials portion of CVISN "snapshots." The status information may be provided as a response to a real-time query or as a result of a standing request for updated information (subscription). This may also include information about non-U.S. fleets for use by U.S. authorities, and information regarding U.S. fleets made available to Mexican and Canadian authorities. The query flow is not explicitly shown.
Crew Movements	Visual or sensed presence of field crew location within a work zone that is monitored to enhance work zone safety.
Crossing Call	Non-motorized user request to cross the roadway. This is an overt request from a pedestrian, micromobility vehicle user (e.g., cyclist), or other vulnerable road users. This overt request may be a physical button push or hovering or gesturing in the vicinity of the button that supports contactless activation.
Crossing Permission	Information provided to guide and warn pedestrians, micromobility vehicle users (e.g., cyclists), and other crosswalk users. It includes crossing request acknowledgment, current crossing permission, crossing time remaining, and real-time warnings of safety threats.
Current Asset Restrictions	Restrictions levied on transportation asset usage based on infrastructure design, surveys, tests, or analyses. This includes standard facility design height, width, and weight restrictions, special restrictions such as spring weight restrictions, and temporary facility restrictions that are imposed during maintenance and construction.
CV Driver Credential	Driver information (e.g., identity, biometrics, address, date of birth, endorsements, restrictions) stored on a driver's license or other official identification card used to identify a driver of commercial vehicles.
CV Driver Record	Information typically maintained by a state driver licensing agency about a driver of a commercial vehicle including driver identification data, license data, permit data, and driving history details. The query flow is not explicitly shown.
CV Repair Status	Information about the completion of a repair to a commercial vehicle.
CVC Override Mode	This flow represents the tactile or auditory interface with ITS equipment containing the manual override of automated pass/pull-in decisions generated by the Commercial Vehicle Check station.

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CVO Driver Initialization	This flow represents the tactile or auditory interface with ITS equipment containing the commercial vehicle driver and vehicle information. This flow contains inquiries to the commercial vehicle managing system, interaction with on-board equipment including setup, configuration, and initiation of self-tests, and entry of carrier, driver, vehicle, and route information.
CVO Inspector Information	This flow represents the visual or auditory interface with ITS equipment containing credential, safety, and preclearance information and instructions to the commercial vehicle inspector.
CVO Inspection Input	This flow represents the tactile or auditory interface with ITS equipment containing requests from the commercial vehicle inspector to operate the commercial vehicle inspection station.
CVO Pass/Pull-in Message	This flow represents the visual or auditory interface with ITS equipment containing a message sent to commercial vehicle driver indicating whether to bypass or requesting pull into inspection/verification stop along with inspection results (e. g., LED indicator on transponder or variable message sign).
CVO Weight and Presence	Physical attribute of commercial vehicle that can be measured (for example, weight, number of axels, axel spacing, etc.).
Daily Site Activity Data	Record of daily activities at commercial vehicle check stations including summaries of screening events and inspections.
Data Collection and Monitoring Control	Information used to configure and control data collection and monitoring systems.
Decision Support Information	Information provided to support effective and safe incident response, including local traffic, road, and weather conditions, hazardous material information, and the current status of resources (including vehicles, other equipment, supplies) that have been allocated to an incident.
Demand Response and Use Data	Data collected on board a demand response vehicle relating to the picking up and discharging of passengers.
Demand Responsive Transit Plan	Plan regarding overall demand responsive transit schedules and deployment.
Demand Responsive Transit Request	Request for paratransit support.
Device Control Request	Request for device control action.
Device Data	Data from detectors, environmental sensor stations, roadside equipment, and traffic control devices, including device inventory information.
Device Status	Status information from devices
Disable Commercial Vehicle	A request that a specific commercial vehicle should be safely disabled.
Driver Alert Response	Commercial Vehicle Driver response to a breach alert for a Freight Equipment breach or tamper event.
Driver Identity Characteristics	The physical or visible characteristics of a commercial vehicle driver that can be measured to uniquely identify a driver. Could be an Identification Card with a Personal Identification Number, biometrics, or visual verification by an operator.

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Driver Information	Regulatory, warning, guidance, and other information provided to the driver to support safe and efficient vehicle operation.
Driver Inputs	Driver input to the vehicle on-board equipment including configuration data, settings and preferences, interactive requests, and control commands.
Driver Log	A daily log showing hours in service for the current driver. The query flow is not explicitly shown.
Driver Parking Information	Presentation of general parking information to drivers including lot status, parking availability, and directions to available spaces, entrances, and exits.
Driver to Fleet Request	Requests from the driver and vehicle for routing, payment, and enrollment information.
Driver Updates	Information provided to the driver including visual displays, audible information and warnings, and haptic feedback. The updates inform the driver about current conditions, potential hazards, and the current status of vehicle on-board equipment.
Electronic Lock Data	Notification to roadside (via transponder) of the presence and status of electronic cargo locks.
Electronic Lock Data Request	Request from roadside for data regarding presence and status of electronic cargo locks.
Electronic Screening Request	Request for identification data to support electronic screening.
Emergency Acknowledge	Acknowledge request for emergency assistance and provide additional details regarding actions and verification requirements.
Emergency Archive Data	Logged emergency information including information that characterizes identified incidents (routine highway incidents through disasters), corresponding incident response information, evacuation information, surveillance data, threat data, and resource information. Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.
Emergency Data Request	A request for additional information or a control command issued by the emergency response agency in response to an emergency request for assistance from a traveler.
Emergency Dispatch Requests	Emergency vehicle dispatch instructions including incident location and available information concerning the incident.
Emergency Dispatch Response	Request for additional emergency dispatch information and provision of en route status.
Emergency Notification	An emergency request for assistance that is automatically initiated by a vehicle or manually initiated by a vehicle occupant or a traveler (vulnerable road user) with a personal information device.
Emergency Operations Inputs	Emergency operator input supporting call taking, dispatch, emergency operations, security monitoring, and other operations and communications center operator functions.
Emergency Operations Status	Presentation of information to the operator including emergency operations data, supporting a range of emergency operating positions including call taker, dispatch, emergency operations, security monitoring, and various other operations and communications center operator positions.

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Emergency Personnel Information Presentation	Presentation of information to emergency personnel in the field including dispatch information, incident information, current road network conditions, device status, and other supporting information.
Emergency Personnel Inputs	User input from emergency personnel in the field including dispatch coordination, incident status information, and remote device control requests.
Emergency Plan Coordination	Information that supports coordination of emergency management plans, continuity of operations plans, emergency response and recovery plans, evacuation plans, and other emergency plans between agencies. This includes general plans that are coordinated prior to an incident and shorter duration tactical plans that are prepared during an incident.
Emergency Route Request	Request for access routes for emergency response vehicles and equipment. This may be a request for ingress or egress routes or other emergency routes.
Emergency Routes	Suggested ingress and egress routes for access to and between the scene and staging areas or other specialized emergency access routes.
Emergency Traffic Control Information	Status of a special traffic control strategy or system activation implemented in response to an emergency traffic control request, a request for emergency access routes, a request for evacuation, a request to activate closure systems, a request to employ driver information systems to support public safety objectives, or other special requests. Identifies the selected traffic control strategy and system control status.
Emergency Traffic Control Request	Special requests to preempt the current traffic control strategy in effect at one or more signalized intersections or highway segments, activate traffic control and closure systems such as gates and barriers, activate safeguard systems, or use driver information systems. For example, this flow can request all signals to red-flash, request a progression of traffic control preemptions along an emergency vehicle route, request a specific evacuation traffic control plan, request activation of a road closure barrier system, or place a public safety or emergency-related message on a dynamic message sign.
Emergency Traffic Coordination	Coordination supporting disaster response including evacuation and reentry. Includes coordination of special traffic control strategies that support efficient evacuation and reentry while protecting and optimizing movement of response vehicles and other resources responding to the emergency.
Emergency Transit Schedule Information	Information on transit schedule and service changes that adapt the service to better meet the needs of responders and the public in an emergency situation, including special service schedules supporting evacuation.
Emergency Transit Service Request	Request to modify transit service and fare schedules to address emergencies, including requests for transit services to evacuate people from and/or deploy response agency personnel to an

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	emergency scene. The request may poll for resource availability or request pre-staging, staging, or immediate dispatch of transit resources.
Emergency Transit Service Response	Response indicating changes to transit service, fares, and/or restrictions that will be made and status of transit resources to be deployed to support emergency response and/or evacuation.
Emergency Traveler Information	Public notification of an emergency such as a natural or man-made disaster, civil emergency, or child abduction. This flow also includes evacuation information including evacuation instructions, evacuation zones, recommended evacuation times, tailored evacuation routes and destinations, traffic and road conditions along the evacuation routes, traveler services and shelter information, and reentry times and instructions.
Emergency Traveler Information Request	Request for alerts, evacuation information, and other emergency information provided to the traveling public.
Emergency Vehicle Alert	Notification to vehicles in the area that an emergency vehicle is in the vicinity. The number of responding vehicles, their status, location, speed, and direction are provided.
Emergency Vehicle Tracking Data	The current location and operating status of the emergency vehicle.
Emissions Sensor Control	Data used to configure and control vehicle emissions sensors.
Emissions Violation Notification	Notification to enforcement agency of a detected vehicle emissions violation. This information flow identifies the vehicle and documents the emissions violation.
Environmental Conditions	Current road conditions (e.g., surface temperature, subsurface temperature, moisture, icing, treatment status) and surface weather conditions (e.g., air temperature, wind speed, precipitation, visibility) that are measured by environmental sensors.
Environmental Conditions Data	Current road conditions (e.g., surface temperature, subsurface temperature, moisture, icing, treatment status) and surface weather conditions (e.g., air temperature, wind speed, precipitation, visibility) as measured and reported by fixed and/or mobile environmental sensors and aggregated by the data collector. Attributes relating to the data collection (and aggregation) are also included.
Environmental Conditions Data Status	Status of the data quality of environmental conditions data provided by a data contributor. Includes not only status by sensor, but statistical data regarding the quality checking of data provided.
Environmental Probe Data	Data from vehicle safety and convenience systems that can be used to estimate environmental conditions, including measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, anti-lock brake status, and other collected vehicle system status and sensor information. The collected data is reported along with the location, heading, and time that the data was collected. Both current data and

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	snapshots of recent events (e.g., traction control or anti-lock brake system activations) may be reported.
Environmental Sensor Data	Current road conditions (e.g., surface temperature, subsurface temperature, moisture, icing, treatment status) and surface weather conditions (e.g., air temperature, wind speed, precipitation, visibility) as measured and reported by fixed and/or mobile environmental sensors. Operational status of the sensors is also included.
Environmental Sensors Control	Data used to configure and control environmental sensors.
Equipment Availability	An inventory of the maintenance and construction equipment available at the storage facility. This flow includes the type of equipment, enough descriptive information to indicate its suitability for use, and its current status. This flow may contain information for a specific type of equipment or include all equipment available at the facility.
Equipment Maintenance Status	Current status of field equipment maintenance actions.
Evacuation Coordination	Coordination of information regarding a pending or in-process evacuation. Includes evacuation zones, evacuation times, evacuation routes, forecast network conditions, and reentry times.
Evacuation Information	Evacuation instructions and information including evacuation zones, evacuation times, and reentry times.
Event Confirmation	Confirmation that special event details have been received and processed.
Event Information	Special event information for travelers. This would include a broader array of information than the similar "event plans" that conveys only information necessary to support traffic management for the event.
Event Information Request	Request for special event information.
Event Plans	Plans for major events possibly impacting traffic.
Expected Driver Identity Characteristics	Driver identification information e.g., encrypted PIN codes issued to drivers, encrypted driver biometric parameters.
Expedited Clearance Information	Includes carrier ID, importer ID, broker ID, conveyance ID, driver ID, service options, and associated information that is used to support expedited border clearance.
Expedited Clearance Registration	Registration of the importer, carrier, conveyance, and driver, as applicable, for border clearance programs such as FAST, Customs Self-Assessment (Canada), C-TPAT (US), PIP (Canada), ACI (Canada), and ACE (US). Includes electronic filing of forms and associated payment.
Expedited Clearance Status	Status of expedited clearance registration.
External Reports	Traffic and incident information that is collected by the media through a variety of mechanisms (e.g., radio station call-in programs, air surveillance).
Fare and Price Information	Current transit, parking, and toll fee schedule information.
Fare Collection Data	Fare collection information including the summary of fare system data and financial payment transaction data.
Fare Management Information	Transit fare information and transaction data used to manage transit fare processing on the transit vehicle.

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Field Device Status	Reports from field equipment (sensors, signals, signs, controllers, etc.) which indicate current operational status.
Field Device Status Presentation	Presentation of operational status of field equipment (sensors, signals, signs, controllers, etc.) to field personnel.
Field Device Status Request	User input from field personnel requesting operational status of field equipment (sensors, signals, signs, controllers, etc.).
Field Equipment Status	Reports from field equipment (sensors, signals, signs, controllers, etc.) which indicate current operational status.
Fleet and Freight Alerts	This flow represents the visual or auditory interface with ITS equipment containing security alert status information regarding commercial vehicle fleets and freight equipment.
Fleet and Freight Threat Information	Information about threats detected by commercial vehicle fleet and freight operators. The threats include incidents involving commercial vehicles (i.e., hijacking), unusual activities observed by commercial vehicle operators (i.e., truck parked under a bridge), and incidents involving freight equipment (i.e., freight equipment tampering).
Fleet Manager Inquiry	This flow represents the tactile or auditory interface with ITS equipment containing an inquiry from fleet manager requesting data from commercial vehicle management system.
Fleet Status	This flow represents the visual or auditory interface with ITS equipment containing fleet status information including enrollment status, safety status including inspection summaries, detailed inspection reports, and safety ratings, routing information, current vehicle information, and emergency information.
Fleet to Driver Update	Updated instructions to the driver including dispatch, routing, travel and parking information, and special instructions. Special instructions include incident management instruction, operational tasks, impacted transport orders in case of an incident, task descriptions with trip/route/load plan, transport order status information, driver information, vehicle information, cargo information and trip information.
Freight Breach	Information about a breach or tamper event on Freight Equipment which includes identity, type of breach, location, and time.
Freight Equipment Information	Container, trailer, or chassis information regarding identity, type, location, brake wear data, mileage, seal #, seal type, door open/close status, chassis bare/covered status, tethered / untethered status, temperature, humidity, power, battery levels, brake wear data, and bill of lading/information regarding the cargo/content.
Freight Monitoring Parameters	Parameters to configure the Freight Equipment for event reporting and keep alive functions.
Freight Transport Booking	Booking information for the transport of freight that includes company, contact information, point of origin, pick-up location, drop-off location, and freight equipment identifier.
Freight Transportation Status	A time-stamped status of a freight shipment as it passes through the supply chain from manufacturer through arrival at its final

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	destination, including cargo movement logs, routing information, and cargo ID's. This includes cargo status, current operation, information on incidents associated with the cargo, and identification of delays/penalties.
Government Reporting Data Receipt	The acknowledgement of satisfactory receipt of information used as input to government data systems or a report identifying problems or issues with the data submittal.
Government Reporting System Data	Information provided by an ITS archive, formatted as appropriate, that can be used as input to government data reporting systems.
Hazmat Environmental Factors	Sensed characteristics of a vehicle that are analyzed to indicate if the vehicle is carrying a security sensitive substance, e.g., detection of radiation or ammonia compounds.
Hazmat Information	Information about a particular hazmat load including nature of the load and unloading instructions. May also include hazmat vehicle route and route update information.
Hazmat Information Request	Request for information about a particular hazmat load.
Hazmat Spill Notification	Information provided to emergency response organizations regarding a hazmat load including when cargo sensors detect an issue with the load such as a release of hazardous material. This information will include sensor information, vehicle identification, and carrier identification.
Highway Control Status	Current traffic control equipment status that indicates operational status and right-of-way availability to the non-highway transportation mode at a multimodal crossing.
HOV Data	Current HOV lane information including both standard traffic flow measures and information regarding vehicle occupancy in HOV lanes, and operational status of the HOV monitoring equipment.
Hri Advisories	Notification of Highway-Rail Intersection equipment failure, intersection blockage, or other condition requiring attention, and maintenance activities at or near highway rail intersections.
Hri Control Data	Data required for HRI information transmitted at railroad grade crossings and within railroad operations.
Hri Operational Status	Status of the highway-rail grade crossing equipment including both the current state or mode of operation and the current equipment condition.
Hri Request	A request for highway-rail intersection status or a specific control request intended to modify HRI operation.
Hri Status	Status of the highway-rail intersection equipment including both the current state or mode of operation and the current equipment condition.
Identification Information	The physical characteristics of a commercial vehicle that can be used to determine a vehicle's identity, such as a license plate number, USDOT number, ICC number, bar code, etc.
Identities	Identification information for the Commercial Vehicle (e.g., license plate number or USDOT number), Freight Equipment (e.g., container, chassis, or trailer identification), and Driver.
Incident Command Information Coordination	Information that supports local management of an incident. It includes resource deployment status, hazardous material

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	information, traffic, road, and weather conditions, evacuation advice, and other information that enables emergency or maintenance personnel in the field to implement an effective, safe incident response.
Incident Command Information Presentation	Presentation of information to emergency personnel in the field that supports local tactical decision-making within an incident command system structure.
Incident Command Inputs	User input from emergency personnel including incident command status, incident information and resource coordination.
Incident Information	Notification of existence of incident and expected severity, location, time, and nature of incident. As additional information is gathered and the incident evolves, updated incident information is provided. Incidents include any event that impacts transportation system operation ranging from routine incidents (e.g., disabled vehicle at the side of the road) through large-scale natural or human-caused disasters that involve loss of life, injuries, extensive property damage, and multi-jurisdictional response. This also includes special events, closures, and other planned events that may impact the transportation system.
Incident Information for Media	Report of current desensitized incident information prepared for public dissemination through the media.
Incident Information for Public	Report of current desensitized incident information prepared for public dissemination through the telecommunications system.
Incident Notification	The notification of an incident including its nature, severity, and location.
Incident Notification Response	Interactive acknowledgement and verification of the incident information received, requests for additional information, and general information on incident response status.
Incident Notification Report	Report of incident notifications made
Incident Report	Report of an identified incident including incident location, type, severity, and other information necessary to initiate an appropriate incident response.
Incident Response Coordination	Incident response procedures and current incident response status that are shared between allied response agencies to support a coordinated response to incidents. This flow provides current situation information, including a summary of incident status and its impact on the transportation system and other infrastructure, and current and planned response activities. This flow also coordinates a positive hand off of responsibility for all or part of an incident response between agencies.
Incident Response Status	Status of the current incident response including a summary of incident status and its impact on the transportation system, traffic management strategies implemented at the site (e.g., closures, diversions, traffic signal control overrides), and current and planned response activities.
Incident Status	Information gathered at the incident site that more completely characterizes the incident and provides current incident response status.

Information Flow	Flow Definition
Information on Violators	Information on violators provided by a law enforcement agency. May include information about commercial vehicle violations or other kinds of violations associated with the particular entity. The information may be provided as a response to a real-time query or proactively by the source. The query flow is not explicitly shown.
Infrastructure Conditions Data	Current condition of pavement, bridges, culverts, signs, and other roadway infrastructure as measured by on-board sensors or read from infrastructure-based sensors. The data may include raw data or images (e.g., photo logs) that indicate the current status of the infrastructure.
Infrastructure Monitoring Sensor Control	Data used to configure and control infrastructure monitoring sensors.
Infrastructure Monitoring Sensor Data	Data read from infrastructure-based sensors that monitor the condition or integrity of transportation infrastructure including bridges, tunnels, interchanges, pavement, culverts, signs, transit rail or guideway, and other roadway infrastructure. Includes sensor data and the operational status of the sensors.
Inspection Results	Report of results of border inspection on a particular load.
Interactive Traveler Information	Traveler information provided in response to a traveler request. The provided information includes traffic and road conditions, advisories, incidents, restrictions, payment information, transit services, parking information, weather information, and other travel-related data updates and confirmations.
Intermodal Freight Archive Data	Information describing demand at intermodal freight terminals including loading/unloading activities of trailers and containers. Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.
Intermodal Freight Event Information	Plans for movement of intermodal freight from the depot area possibly impacting traffic. May also include requests for special treatment at traffic signals or dynamic lane management systems.
Intermodal Freight Traffic Confirmation	Information on traffic conditions affecting the depot including information concerning any special traffic control accommodations or restrictions for commercial vehicles.
Intersection Blockage Notification	Notification that a highway-rail intersection is obstructed and supporting information.
Intersection Status	Current signal phase and timing information for all lanes at a signalized intersection. This flow identifies active lanes and lanes that are being stopped and specifies the length of time that the current state will persist for each lane. It also identifies signal priority and preemption status and pedestrian crossing status information where applicable.
In-Vehicle Transaction Status	The status of an electronic payment transaction presented to the driver by in-vehicle equipment.
ISP Operations Information Presentation	Presentation of information to the ISP Operator including current operational status, parameters for broadcast information settings, route selection controls, and travel optimization algorithms.

Information Flow	Flow Definition
ISP Operator Inputs	User input from the ISP system operator including requests to monitor current system operation and inputs to affect system operation including tuning and performance enhancement parameters to ISP algorithms.
Lane Management Control	Information used to configure and control dynamic lane management systems.
Lane Management Information	System status of managed lanes including current operational state, violations, and logged information. This includes lane usage information including both traditional traffic flow measures and special information associated with managed lanes such as measured passenger occupancies. It also includes the operational status of the lane management equipment.
Lane Management Inputs	This flow provides inputs to dynamic lane management systems including the types of vehicles to allow in each lane.
License Request	Request supporting registration data based on license plate read during violation or at the scene of an incident.
Lighting System Control Data	Information used to configure and control roadside lighting systems.
Lighting System Status	Status of roadside lighting controls including operating condition and current operational state.
Local Signal Preemption Request	Direct control signal or message to a signalized intersection that results in preemption of the current control plan and grants right-of-way to the requesting vehicle.
Local Signal Priority Request	Request from a vehicle to a signalized intersection for priority at that intersection. This flow also allows the vehicle to cancel a priority request (for example, when the vehicle clears the intersection).
Logged Vehicles Routes	Anticipated route information for guided vehicles, special vehicles (e.g., oversized vehicles) or groups of vehicles (e.g., governor's motorcade) that may require changes in traffic control strategy.
Maintenance and Construction Administrative Information	Administrative information that is provided to support maintenance and construction operations. This information includes equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract administration.
Maintenance and Construction Administrative Request	Requests for maintenance and construction administrative information or services. Requests include requests to purchasing equipment and consumables resupplies and requests to human resources that manage training and special certification for field crews and other personnel.
Maintenance and Construction Archive Data	Information describing road construction and maintenance activities identifying the type of activity, the work performed, and work zone information including work zone configuration and safety (e.g., a record of intrusions and vehicle speeds) information. For construction activities, this information also includes a description of the completed infrastructure, including as-built

Information Flow	Flow Definition
	plans as applicable. Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.
Maintenance and Construction Center Personnel Inputs	User input from maintenance and construction center personnel including routing information, scheduling data, dispatch instructions, device configuration and control, resource allocations, alerts, incident, and emergency response plan coordination.
Maintenance and Construction Dispatch Information	Information used to dispatch maintenance and construction vehicles, equipment, and crews and information used to keep work zone crews informed. This information includes routing information, traffic information, road restrictions, incident information, environmental information, decision support information, maintenance schedule data, dispatch instructions, personnel assignments, alert notifications, and corrective actions.
Maintenance and Construction Dispatch Status	Current maintenance and construction status including work data, operator status, crew status, and equipment status.
Maintenance and Construction Equipment Repair Status	Current maintenance and repair status of the maintenance and construction vehicle fleet and other support equipment. This information includes a record of all maintenance and repair activities performed.
Maintenance and Construction Field Personnel Information Presentation	Information presented to maintenance and construction field personnel including vehicle routing and traffic information, road restrictions, environmental information, decision support information, maintenance schedules, dispatch instructions, maintenance personnel assignments, vehicle maintenance information, work zone status information, and corrective actions.
Maintenance and Construction Field Personnel Inputs	User input from field personnel including current maintenance and construction status information as well as on-board device control.
Maintenance and Construction Fleet information	Information supporting maintenance of the maintenance and construction vehicle fleet and other support equipment. This information includes vehicle status and diagnostic information, vehicle utilization, and coordination of when vehicles will be available for preventative and corrective maintenance.
Maintenance and Construction Material Information	Information on materials stored on the vehicle including quantity and current application rate.
Maintenance and Construction Operations Information Presentation	Presentation of maintenance and construction operations information to center personnel. This information includes maintenance resource status (vehicles, equipment, and personnel), work schedule information, work status, road and weather conditions, traffic information, incident information and associated resource requests, security alerts, emergency response plans and a range of other information that supports efficient maintenance and construction operations and planning.
Maintenance and Construction Resource Coordination	Request for road maintenance and construction resources that can be used in the diversion of traffic (cones, portable signs), clearance

Information Flow	Flow Definition
	of a road hazard, repair of ancillary damage, or any other incident response.
Maintenance and Construction Resource Request	Request for road maintenance and construction resources that can be used in the diversion of traffic (cones, portable signs), clearance of a road hazard, repair of ancillary damage, or any other incident response. The request may poll for resource availability or request pre-staging, staging, or immediate dispatch of resources.
Maintenance and Construction Resource Response	Current status of maintenance and construction resources including availability and deployment status. General resource inventory information covering vehicles, equipment, materials, and people and specific resource deployment status may be included.
Maintenance and Construction Vehicle Condition Presentation	Presentation of vehicle diagnostics and operating status information to maintenance and construction field personnel including speed, engine temperature, mileage, tire wear, brake wear, belt wear, maintenance and construction system status, environmental sensor information, and other measures associated with the operation of a maintenance vehicle.
Maintenance and Construction Vehicle Condition	Vehicle diagnostics information that is collected, filtered, and selectively reported by a maintenance and construction vehicle. The information includes engine temperature, mileage, tire wear, brake wear, belt wear, and any warnings or alarms concerning the operational condition of the vehicle and ancillary equipment.
Maintenance and Construction Vehicle Control	Control data sent from on-board ITS systems to control maintenance and construction vehicle equipment, including control of materials dispersion rate and other control functions that will vary with vehicle type and application.
Maintenance and Construction Vehicle Location Data	The current location and related status (e.g., direction and speed) of the maintenance/construction vehicle.
Maintenance and Construction Vehicle Measures	Raw vehicle diagnostics and operating status data reported by the maintenance vehicle platform including engine temperature, mileage, tire wear, brake wear, belt wear, and other operational status measures. In addition to this general vehicle status, this flow also includes the status of maintenance and construction-specific systems on the vehicle.
Maintenance and Construction Vehicle Operational Data	Data that describes the maintenance and construction activity performed by the vehicle. Operational data includes materials usage (amount stored and current application rate), operational state of the maintenance equipment (e.g., blade up/down, spreader pattern), vehicle safety status, and other measures associated with the operation of a maintenance, construction, or other special purpose vehicle. Operational data may include basic operational status of the vehicle equipment, or a more precise record of the work performed (e.g., application of crack sealant with precise locations and application characteristics).
Maintenance and Construction Vehicle Status Coordination	Maintenance and construction vehicle status information that is shared between vehicles. This includes environmental conditions and the operational status of the vehicles.

Information Flow	Flow Definition
Maintenance and Construction Vehicle System Control	Configure and control data that supports remote control of on-board maintenance and construction vehicle systems and field equipment that is remotely controlled by the vehicle. For example, the data can be used to adjust material application rates and spread patterns.
Maintenance and Construction Work Performance	Overall project status and work performance information provided to support contract administration.
Maintenance and Construction Work Plans	Future construction and maintenance work schedules and activities including anticipated closures with anticipated impact to the roadway, alternate routes, anticipated delays, closure times, and durations.
Maintenance and Repair Needs	Recommended strategies and schedules for maintenance of the transportation infrastructure.
Maintenance Materials Storage Status	The amount and availability of maintenance materials in storage facilities.
Manifest Data	Identifies Port of Entry, date, and information on carrier and goods, origin, etc.
Manifest Receipt Confirmation	Confirmation that a shippers' manifest has been received.
Map Update Request	Request for a map update which could include a new underlying map or map layer updates.
Map Updates	Map update that could include a new underlying static or real-time map or map layer(s) update. Map layers can include highways, major roads, streets, public transport routes, topography, points of interest, and regulatory information including turn restrictions and speed limits.
Multimodal Archive Data	Operational information from alternate passenger transportation modes including air, rail transit, taxis, and ferries. Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.
Multimodal Crossing Status	Indication of operational status and pending requests for right-of-way from equipment supporting the non-highway mode at multimodal crossings.
Multimodal Information	Schedule information for alternate mode transportation providers such as train, ferry, air, and bus.
Multimodal Information Request	Information request for alternate mode transportation providers such as train, ferry, air, and bus.
Multimodal Service Data	Multimodal transportation schedules and other service information.
Non-Vehicular Presence	Sensed presence of pedestrians and other non-motor vehicle travelers at roadway crossing or control points.
On-Board Safety Data	Safety data measured by on-board sensors. Includes information about the vehicle, vehicle components, cargo, and driver. The query flow is not explicitly shown.
On-Board Vehicle Data	Information about the commercial vehicle stored on-board (for maintenance purposes, gate access, cargo status, lock status, etc.). The request flow is not explicitly shown.
On-Board Vehicle Request	Request for on-board vehicle data.

Information Flow	Flow Definition
Other Data Source Archive Data	Data extracted from other data sources. A wide range of ITS and non-ITS data and associated meta data may be provided.
Parking Archive Data	Data used to analyze and monitor trends in parking demand, pricing, and operational actions. Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.
Parking Coordination	Information that enables parking management activities to be coordinated between different parking operators or systems in a region.
Parking Demand Management Request	Request to change the demand for parking facility use through pricing or other mechanisms.
Parking Demand Management Response	Response to parking demand management change requests indicating level of compliance with request.
Parking Information	General parking information and status, including current parking availability, parking pricing, and parking space availability information, including features like number and type of electric charging spots.
Parking Lot Data Request	Request for parking lot occupancy, fares, and availability. The request can be a subscription that initiates as-needed information updates as well as a one-time request for information.
Parking Lot Inputs	Instructions for the operation of local parking facilities to support regional traffic management objectives (e.g., which parking lot exits to use). Also, includes inputs from traffic sensors to support calculation of parking lot occupancy and support more effective management of parking entrances and exits.
Parking Lot Reservation Confirmation	Confirmation for parking lot reservation.
Parking Operator Input	User input from the parking operator to query current status and control the operation of the parking management system.
Parking Reservation Request	Reservation request for parking including special requests and needs such as disabled space access, electric vehicle charging, etc.
Parking Status	Presentation of information to the parking manager including operational status and transaction reports. This includes aggregated status for parking areas as well as status for back-office operations.
Pass/Pull-in	Command to commercial vehicle to pull into or bypass inspection station.
Patient Status	Information that supports assessment of the incident victim's (patient's) status. Information could include general categorization of their status, vital signs, pertinent medical history, quarantine status, and emergency care information.
Payment	Payment of some kind (e.g., toll, parking, fare) by traveler which, in most cases, can be related to a credit account.
Payment Administration Requests	Personnel inputs that control system operations, including requests to change toll fees, confirmation that alerts should be provided to toll operators, management of VMT charge policies and management of VMT account processing, etc.

Information Flow	Flow Definition
Payment Information Presentation	Presentation of information to personnel including revenues, reports, operational status information, and alert information.
Payment Request	Request for payment from financial institution or related financial service requests (e.g., balance inquiry).
Payment Violation Notification	Notification to enforcement agency of a toll, parking, or transit fare payment violation.
Personal Transit Information	General and personalized transit information for a particular fixed route, flexible route, or paratransit system.
Physical Presence	Detection of an obstacle. Obstacles could include animals, incident management and construction elements such as cones, barrels and barriers, rocks in roadway, etc.
Pollutant Levels	Atmospheric pollutant levels as monitored by air quality sensors.
Pollution Data Display	Presentation of information to the operator supporting both area-wide air quality monitoring and vehicle emissions monitoring. Includes both reference and current pollution status details for a given geographic area.
Pollution Data Parameters	User input from the system operator including nominal pollution data compliance (reference) levels for each sector of an urban area.
Pollution Sensor Control	Data used to configure and control area pollution and air quality sensors.
Pollution State Data Request	Aggregated emissions data information request.
Position Fix	Information which provides a traveler's or vehicle's geographical position.
Pre-Arrival Notification	Identification of a vehicle or driver that is approaching a border crossing.
Probe Archive Data	Probe data that allows calculation of travel times, volumes, and other measures that support transportation planning. Optionally, this flow also includes origin and destination information for vehicles that opt to provide this information.
Public Health Request	Request for specific information or recommended response concerning an emergency involving biological or other medically related emergency.
Public Health Response	Specific information or recommendation on how to treat or respond to an emergency involving biological or other medically related emergency.
Qualified Environmental Conditions Data	Current road conditions (e.g., surface temperature, subsurface temperature, moisture, icing, treatment status) and surface weather conditions (e.g., air temperature, wind speed, precipitation, visibility) that has had quality checks performed on it and has been formatted and consolidated by the Clarus system. Attributes relating to the data collection (and aggregation) are also included.
Rail Incident Response Status	Status of the rail system's response to current incidents.
Rail System Status Assessment	Assessment of damage sustained by rail lines and associated railroad infrastructure including location and extent of the damage, impact on current operations and necessary restrictions, and time frame for repair and recovery.

Information Flow	Flow Definition
Railroad Advisories	Real-time notification of railway-related incident or advisory.
Railroad Schedules	Train schedules, maintenance schedules, and other information from the railroad that supports forecast of HRI closures.
Registration	Registered owner of vehicle and associated vehicle information.
Remote Surveillance Control	The control commands used to remotely operate another center's sensors or surveillance equipment so that roadside surveillance assets can be shared by more than one agency.
Remote Vehicle Disable	Signal used to remotely disable a transit vehicle.
Request for Bad Tag List	Request for list of bad vehicle tag IDs.
Request for Data Review	Request that data reported about a motor carrier or driver be reviewed for potential mis-assignment or other error.
Request for Enforcement	Request for traffic enforcement of speed limits, lane controls, etc. on a roadway including in a work zone or other special situations.
Request for Payment	Request to deduct the cost of service from user's payment account.
Request for Performance Data	User input from the parking operator to request current parking service performance data.
Request for Permit	Request for commercial vehicle permits including oversize, overweight, or hazmat permit.
Request for Service	Driver inputs that summon an emergency response, request a financial transaction, or initiate other services.
Request for Vehicle Measures	Request for vehicle performance and maintenance data collected by onboard sensors.
Request Tag Data	Request for tag information including tag id and associated data.
Request Transit Information	Request for transit service information and current transit status.
Resource Coordination	Coordination of resource inventory information, specific resource status information, resource prioritization and reallocation between jurisdictions, and specific requests for resources and responses that service those requests.
Resource Deployment Status	Status of resource deployment identifying the resources (vehicles, equipment, materials, and personnel) available and their current status. General resource inventory information and specific status of deployed resources may be included.
Resource Request	A request for resources to implement special traffic control measures, assist in clean up, verify an incident, etc. The request may poll for resource availability or request pre-staging, staging, or immediate deployment of resources. Resources may be explicitly requested, or a service may be requested, and the specific resource deployment may be determined by the responding agency.
Reversible Lane Control	Control of automated reversible lane configuration and driver information systems.
Reversible Lane Status	Current reversible lane status including traffic sensor and surveillance data and the operational status and mode of the reversible lane control equipment.
Right-of-Way Request Notification	Notice that a request has occurred for signal prioritization, signal preemption, pedestrian call, multi-modal crossing activation, or other source for right-of-way.

Information Flow	Flow Definition
Road Closure notification	Notification that agency personnel have closed a road due to adverse weather, major incident, or other reason.
Road Data	Basic road facility and treatment information that supports road conditions forecasts.
Road Network Conditions	Current and forecasted traffic information, road and weather conditions, and other road network status. Either raw data, processed data, or some combination of both may be provided by this flow. Information on diversions and alternate routes, closures, and special traffic restrictions (lane/shoulder use, weight restrictions, width restrictions, HOV requirements) in effect is included along with a definition of the links, nodes, and routes that make up the road network.
Road Network, Environmental Probe Data	Aggregated vehicle probe information that can be used to estimate current environmental conditions. Collected information would include measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, ALB status, and other collected vehicle system status and sensor information.
Road Network Status Assessment	Assessment of damage sustained by the road network including location and extent of the damage, estimate of remaining capacity, required closures, alternate routes, necessary restrictions, and time frame for repair and recovery.
Road Network Traffic Probe Data	Aggregated route usage, travel times, and other aggregated data collected from probe vehicles that can be used to estimate current traffic conditions.
Road Network Traffic Situation Data	Aggregated route usage, travel times, and other aggregated data collected from probe vehicles that can be used to estimate current traffic conditions.
Road User Protection Data	Current data as well as operational status from mixed roadway and right-of-way systems.
Road User Protection Device Control	Control requests and operating parameters for mixed roadway and right-of-way systems.
Road Weather Information	Road conditions and weather information that are made available by road maintenance operations to other transportation system operators.
Roadside Archive Data	A broad set of data derived from roadside sensors that includes current traffic conditions, environmental conditions, and any other data that can be directly collected by roadside sensors. This data also indicates the status of the sensors and reports of any identified sensor faults.
Roadside Data Message	Data set collected by roadside sensors to identify and characterize a vehicle, carrier, and (potentially) driver.
Roadside Transaction Status	The status of an electronic payment transaction provided directly to the driver via sign or other roadside infrastructure.
Roadway Characteristics	Detectable or measurable road characteristics such as friction coefficient and general surface conditions, road geometry and markings, etc. These characteristics are monitored or measured by

Information Flow	Flow Definition
	ITS sensors and used to support advanced vehicle safety and control and road maintenance capabilities.
Roadway Equipment Coordination	The direct flow of information between field equipment. This includes transfer of information between sensors and driver information systems (e.g., DMS, HAR, variable speed limit signs, dynamic lane signs) or control devices (e.g., traffic signals, ramp meters), direct coordination between adjacent control devices, interfaces between detection and warning or alarm systems, and any other direct communications between field equipment.
Roadway Information System Data	Information used to initialize, configure, and control roadside systems that provide driver information (e.g., dynamic message signs, highway advisory radio, beacon systems). This flow can provide message content and delivery attributes, local message store maintenance requests, control mode commands, status queries, and all other commands and associated parameters that support remote management of these systems.
Roadway Information System Status	Current operating status of dynamic message signs, highway advisory radios, beacon systems, or other configurable field equipment that provides dynamic information to the driver.
Roadway Maintenance Status	Summary of maintenance fleet operations affecting the road network. This includes the status of winter maintenance (snowplow schedule and current status).
Roadway Safety Data	Information about potential safety hazards in the vehicle path such as stalled vehicles, wrong way drivers, debris, or standing water.
Roadway Treatment System Control	Control data for remotely located, automated devices, that treat the road surface (e.g., de-icing applications).
Roadway Treatment System Status	Current operational status of automated roadway treatment devices (e.g., anti-icing systems).
Roadway Warning System Control	Information used to configure and control roadway warning systems.
Roadway Warning System Status	Current operating status of roadway warning systems.
Route Assignment	Route assignment information for transit vehicle operator.
Route Deviation Alert	An alert that indicates a deviation from a planned route has been detected. The alert will contain the current Commercial Vehicle location and identity.
Route Plan	Tailored route provided by ISP in response to a specific request.
Route Request	Request for a tailored route based on given constraints.
Route Restrictions	Information about routes, road segments, and areas that do not allow the transport of security sensitive hazmat cargoes or include other restrictions (such as height or weight limits).
Safe Vehicle Disable	Control signal disabling or enabling commercial vehicle.
Safeguard System Control	Data that controls safeguard systems (remotely controlled equipment used to mitigate the impact of incidents on transportation infrastructure, such as blast shields, exhaust systems, etc.).
Safeguard System Status	Current operating status of safeguard systems (remotely controlled equipment used to mitigate the impact of incidents on

Information Flow	Flow Definition
	transportation infrastructure, such as blast shields, exhaust systems, etc.). Status of the systems includes operating condition and current operational state.
Safety Inspection Record	Record containing results of commercial vehicle safety inspection.
Safety Inspection Report	Report containing results of commercial vehicle safety inspection. The information may be provided as a response to a real-time query or proactively by the source. The query flow is not explicitly shown.
Safety Inspection Request	Request for safety inspection record.
Safety Status Information	Safety information such as safety ratings, security ratings or flags, inspection summaries, and violation summaries. A unique identifier is included. Corresponds to the safety and security portion of CVISN "snapshots." The status information may be provided as a response to a real-time query or as a result of a standing request for updated information (subscription). This may also include information about non-U.S. fleets for use by U.S. authorities, and information regarding U.S. fleets made available to Mexican and Canadian authorities. The query flow is not explicitly shown.
Safety System Status	Current vehicle safety system status indicating the operating condition of these systems and the safety status of the vehicle and driver.
Screening Event Record	Results of CVO electronic screening activity.
Screening Results	Results of commercial vehicle screening event at a border crossing – reports clearance event data regarding action taken at border, including acceptance or override of system decision, and date/time stamp.
Secure Area Characteristics	The range of physical and environmental characteristics (visual, audible, presence, motion, chemical, biological, radiological, other) that are monitored by surveillance and sensor systems.
Secure Area Sensor Control	Information used to configure and control threat sensors (e.g., thermal, acoustic, radiological, chemical), object, motion, and intrusion detection sensors. The provided information controls sensor data collection, aggregation, filtering, and other local processing.
Secure Area Sensor Data	Data provided by threat sensors (e.g., thermal, acoustic, radiological, chemical), and intrusion, motion, and object detection sensors in secure areas indicating the sensor's operational status, raw and processed sensor data, and alarm indicators when a threat has been detected.
Secure Area Surveillance Control	Information used to configure and control audio and video surveillance systems used for transportation infrastructure security in secure areas. The provided information controls surveillance data collection, aggregation, filtering, and other local processing.
Secure Area Surveillance Data	Data collected from surveillance systems used to monitor secure areas. Includes video, audio, processed surveillance data, equipment operational status, and alarm indicators when a threat has been detected.

Information Flow	Flow Definition
Security Equipment Maintenance Status	Current status of security surveillance and sensor field equipment maintenance actions.
Security Field Equipment Status	Identification of security sensors and surveillance equipment requiring repair and known information about the associated faults.
Selected Routes	Routes selected based on route request criteria.
Service Request	Notification that service is required to address an equipment or vehicle code violation.
Service Response	Multimodal (possibly non-roadway) transit provider services information and trip reservation confirmations.
Shelter Information	Evacuation shelter information including location, hours of operation, special accommodations, and current vacancy/availability information.
Short Range Communications Status	Status of the short-range communications equipment including the current state or mode of operation and the current equipment status.
Shoulder Management Control	Information used to configure and control systems that allow use of a shoulder as a lane for vehicular traffic.
Shoulder Management Information	System status including current operational state, violations, and logged information.
Signal Control Commands	Control of traffic signal controllers or field masters including clock synchronization.
Signal Control Data	Information used to configure local traffic signal controllers.
Signal Control Device Configuration	Data used to configure traffic signal control equipment including local controllers and system masters.
Signal Controls Plans	Traffic signal timing parameters including minimum green time and interval durations for basic operation and cycle length, splits, offset, phase sequence, etc. for coordinated systems.
Signal Control Status	Operational and status data of traffic signal control equipment including operating condition and current indications.
Signal Fault Data	Faults reported by traffic signal control equipment.
Signal System Configuration	Data used to configure traffic signal systems including configuring control sections and mode of operation (time based or traffic responsive).
Speed Monitoring Control	Information used to configure and control automated speed monitoring, speed warning, and speed enforcement systems.
Speed Monitoring Information	System status including current operational state and logged information including measured speeds, warning messages displayed, and violation records.
Storage Facility Request	Request for information about the equipment and/or materials available at a maintenance storage facility.
Suggested Route	Suggested route for a dispatched emergency or maintenance vehicle that may reflect current network conditions and the additional routing options available to en route emergency or maintenance vehicles that are not available to the general public.
Tag Data	Unique tag ID and related vehicle information.
Targeted List	List of carriers, drivers, and/or vehicles of interest for enforcement purposes.

Information Flow	Flow Definition
Tax Filing	Commercial vehicle tax filing data. Authorization for payment is included.
Threat Data for Analysis	Data from surveillance or sensor equipment in secure areas provided for further analysis.
Threat Information	Threats regarding transportation infrastructure, facilities, or systems detected by a variety of methods (sensors, surveillance, threat analysis of advisories from outside agencies, etc.
Threat Information Coordination	Sensor, surveillance, and threat data including raw and processed data that is collected by sensor and surveillance equipment located in secure areas.
Threat Support Data	Information provided to help receiving agencies identify possible threats, including biometric image processing support data.
Toll Advisories	Alerts and advisories provided to toll plazas to keep toll operators informed of identified threats that may impact toll operations or public safety on a toll facility.
Toll Archive Data	Data indicating toll facility usage and pricing schedules. Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.
Toll Coordination	This flow supports reciprocity between toll agencies/service centers by exchanging information that supports reconciliation of toll charges by customers that are enrolled with other toll service centers. In addition to toll charge reconciliation, exchanged information may include toll schedule information, customer information and other toll service information that is coordinated between toll agencies or centers.
Toll Data	Current toll schedules for different types of vehicles as well as advanced toll payment information.
Toll Data Request	Request made to obtain toll schedule information or pay a toll in advance. The request can be a subscription that initiates as-needed information updates as well as a one-time request for information.
Toll Instructions	Information provided to configure and support toll plaza operations including toll pricing information.
Toll Operator Information Presentation	Information presented to the toll collection point operator, including toll transaction information, alerts, and advisories.
Toll Operator Request	User input from the toll operator to request information at the toll collection site.
Toll Probe Data	Aggregate probe data derived from electronic toll collection operations. Data collected could include vehicle speeds and travel times for a given link or collection of links.
Toll Service Change Response	Response to toll service change requests indicating level of compliance with request.
Toll Transactions	Detailed list of transactions from a toll station.
Track Status	Current status of the wayside equipment and notification of an arriving train.
Traffic Archive Data	Information describing the use and vehicle composition on transportation facilities and the traffic control strategies

Information Flow	Flow Definition
	employed. Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.
Traffic Characteristics	Physical traffic characteristics which are monitored and translated into macroscopic measures like occupancy, volume, density, and average speed. Point measures support presence detection and individual vehicle measures like speed.
Traffic Control Priority Request	Request for signal priority at one or more intersections along a particular route.
Traffic Control Priority Status	Status of signal priority request functions at the roadside (e.g., enabled or disabled).
Traffic Flow	Raw and/or processed traffic detector data which allows derivation of traffic flow variables (e.g., speed, volume, and density measures) and associated information (e.g., congestion, potential incidents). This flow includes the traffic data and the operational status of the traffic detectors.
Traffic Images	High fidelity, real-time traffic images suitable for surveillance monitoring by the operator or for use in machine vision applications. This flow includes the images. Meta data that describes the images is contained in another flow.
Traffic Information for Media	Report of traffic conditions including traffic incident reports for public dissemination through the media. The reports may also include information on diversions and alternate routes, closures, and special traffic restrictions in effect.
Traffic Metering Control	Control commands and operating parameters for ramp meters, interchange meters, mainline meters, and other systems equipment associated with roadway metering operations.
Traffic Metering Status	Current operational status and operating parameters for ramp meters, interchange meters, mainline meters and other control equipment associated with roadway metering operations.
Traffic Operator Data	Presentation of traffic operations data to the operator including traffic conditions, current operating status of field equipment, maintenance activity status, incident status, video images, security alerts, emergency response plan updates and other information. This data keeps the operator apprised of current road network status, provides feedback to the operator as traffic control actions are implemented, provides transportation security inputs, and supports review of historical data and preparation for future traffic operations activities.
Traffic Operator Inputs	User input from traffic operations personnel including requests for information, configuration changes, commands to adjust current traffic control strategies (e.g., adjust signal timing plans, change DMS messages), and other traffic operations data entry.
Traffic probe Data	Vehicle data that is used to determine traffic conditions. In a basic implementation, the data could be limited to time stamped unique identifiers that can be used to measure a vehicle's progress through the network. In more advanced implementations, the vehicle may report current position, speed, and heading and

Information Flow	Flow Definition
	snapshots of recent events including route information, starts and stops, speed changes, and other information that can be used to estimate traffic conditions.
Traffic Probe Reporting Management	Data used to manage probe data reporting by vehicles. This flow indicates to the vehicle when to report probe data, the type of probe data to send, and thresholds for nominal conditions when sending data can be skipped.
Traffic Sensor Control	Information used to configure and control traffic sensor systems.
Traffic Violation Notification	Notification to enforcement agency of a detected traffic violation including speed violations, HOV violations, and dynamic lane violations.
Transaction Status	Response to transaction request. Normally dealing with a request for payment.
Transit and Fare Schedules	Transit service information including routes, schedules, and fare information. This also includes on-demand service information.
Transit Archive Data	Data used to describe and monitor transit demand, fares, operations, and system performance. Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.
Transit Demand Management Request	Request to change the demand for transit facility use through pricing or other mechanisms.
Transit Demand Management Response	Response to transit demand management change requests indicating level of compliance with request.
Transit Emergency Data	Initial notification of transit emergency at a transit stop or on transit vehicles and further coordination as additional details become available and the response is coordinated.
Transit Fare and Passenger Status	Information provided from the traveler location that supports fare payments, passenger data, and associated record-keeping.
Transit Fare Coordination	Fare and pricing information shared between local/regional transit organizations.
Transit Fare Information	Information provided by transit management that supports fare payment transactions and passenger data collection.
Transit Incident Information	Information on transit incidents that impact transit services for public dissemination.
Transit Incidents for Media	Report of an incident impacting transit operations for public dissemination through the media.
Transit Information for Media	Report of transit schedule deviations for public dissemination through the media.
Transit Information Request	Request for transit operations information including schedule and fare information. The request can be a subscription that initiates as-needed information updates as well as a one-time request for information.
Transit Information User Request	Request for special transit routing, real-time schedule information, and availability information.
Transit Multimodal Information	Transit schedule information for coordination at modal interchange points.

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Transit Operators Personnel Inputs	User input from transit operations personnel including instructions governing service availability, schedules, emergency response plans, transit personnel assignments, transit maintenance requirements, and other inputs that establish general system operating requirements and procedures.
Transit Operations Status	Presentation of information to transit operations personnel including accumulated schedule and fare information, ridership and on-time performance information, emergency response plans, transit personnel information, maintenance records, and other information intended to support overall planning and management of a transit property.
Transit Probe Data	Aggregate probe data derived from tracking transit vehicles. Data collected could include transit vehicle speeds and travel times for a given link or collection of links.
Transit Request Confirmation	Confirmation of a request for transit information or service.
Transit Schedule Adherence Information	Dynamic transit schedule adherence and transit vehicle location information.
Transit Schedule Information	Current and projected transit schedule information used to initialize the transit vehicle with a vehicle assignment, monitor schedule performance, and develop corrective actions on-board.
Transit Service Coordination	Schedule coordination or AVL information shared between local/regional transit organizations.
Transit Service Information	Transit service information includes routes, schedules, and fare information as well as dynamic transit schedule adherence and transit vehicle location information.
Transit System Data	Current transit system operations information indicating current transit routes and fares, the level of service on each route, and the progress of individual vehicles along their routes for use in forecasting demand and estimating current transportation network performance.
Transit System Status Assessment	Assessment of damage sustained by the public transportation system including location and extent of the damage, current operational status including an estimate of remaining capacity and necessary restrictions, and time frame for repair and recovery.
Transit Traveler Information	Transit information is prepared to support transit users and other travelers. It contains transit schedules, real-time arrival information, fare schedules, alerts and advisories, and general transit service information.
Transit Traveler Information Coordination	Transit schedules, real-time arrival information, fare schedules, and general transit service information shared between transit organizations to support transit traveler information systems.
Transit Traveler Request	Request by a Transit traveler to summon assistance, request transit information, or request any other transit services.
Transit Trip Plan	An origin-destination transit trip that may involve multiple modes and connections.
Transit Trip Request	Request for a transit trip plan that is responsive to traveler requirements such as schedule, cost, or duration.

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Transit User Information	Information about individual transit users boarding a transit vehicle, used to track a user's progress on a scheduled transit trip.
Transit Vehicle Conditions	Operating conditions of transit vehicle (e.g., engine running, oil pressure, fuel level and usage).
Transit Vehicle Loading Data	Data collected on board the transit vehicle relating to passenger boarding and alighting.
Transit Vehicle Location Data	Current transit vehicle location and related operational conditions data provided by a transit vehicle.
Transit Vehicle Measures	Transit vehicle status measured by on-board ITS equipment.
Transit Vehicle Operator Authentication Update	Results of authentication process or update of on-board authentication database.
Transit Vehicle Operator Availability	Transit vehicle operator availability data that can be used to develop vehicle operator assignments and detailed operations schedules.
Transit Vehicle Operator Display	Visual, audible, and tactile outputs to the transit vehicle operator including vehicle surveillance information, alarm information, vehicle system status, information from the operations center, and information indicating the status of all other on-board ITS services.
Transit Vehicle Operator Information	Transit service instructions, wide area alerts, traffic information, road conditions, and other information for both transit and paratransit operators.
Transit Vehicle Operator Inputs	Transit vehicle operator inputs to on-board ITS equipment, including tactile and verbal inputs. Includes authentication information, on-board system control, emergency requests, and fare transaction data.
Transit Vehicle Schedule Performance	Estimated times of arrival and anticipated schedule deviations reported by a transit vehicle.
Transportation Border Clearance Assessment	Includes directions for commercial driver to proceed to nearest vehicle weight and inspection station for further review if required.
Transportation Information for Operations	Information on the state of transportation system operations including traffic and road conditions, advisories, incidents, transit service information, weather information, parking information, and other related data.
Transportation System Status	Current status and condition of transportation infrastructure (e.g., tunnels, bridges, interchanges, TMC offices, maintenance facilities). In case of disaster or major incident, this flow provides an assessment of damage sustained by the surface transportation system including location and extent of the damage, estimate of remaining capacity and necessary restrictions, and time frame for repair and recovery.
Transportation Weather Information	Current and forecast road conditions and weather information (e.g., surface condition, flooding, wind advisories, visibility, etc.) associated with the transportation network. This information is of a resolution, timeliness, and accuracy to be useful in transportation decision making.
Transportation Weather Information Request	A request for transportation weather information that may specify the area of interest (a geographic region, particular routes within a region, specific road segments), the type of information that is

Information Flow	Flow Definition
	required, the desired spatial resolution of the information, and time horizon.
Travel Service Information	Information supplied by a service provider (e.g., a hotel or restaurant) that identifies the service provider and provides details of the service offering. This flow covers initial registration of a service provider and subsequent submittal of new information and status updates so that data currency is maintained.
Travel Service Information Request	Requests for travel service information. This flow supports initial registration of service providers and requests for additional traveler service information from registered providers.
Travel Service Reservation Request	Reservation request for traveler services (e.g., for a hotel or restaurant) including billing information when applicable.
Travel Service Reservations	Traveler service (e.g., for a hotel or restaurant) reservation information and status, including information on associated billing transactions, when applicable.
Travel Services Information	Travel service information and reservations for tourist attractions, lodging, dining, service stations, emergency services, and other services and businesses of interest to the traveler.
Travel Services Request	Request for travel service information including tourist attractions, lodging, restaurants, electric vehicle charging, service stations, and emergency services. The request identifies the type of service, the area of interest, optional reservation request information, parameters that are used to prioritize or filter the returned information, and sorting preferences.
Traveler Alerts	Traveler information alerts reporting congestion, incidents, adverse road or weather conditions, restrictions, vehicle requirements, parking availability, transit service delays or interruptions, and other information that may impact the traveler. Relevant alerts are provided based on traveler-supplied profile information including trip characteristics and preferences.
Travelers Archive Data	Data associated with traveler information services including service requests, facility usage, rideshare, routing, and traveler payment transaction data. Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.
Traveler Card Information	The traveler personal information such as name, address, license number, and trip records and profile data.
Traveler Card Update	Information updated concerning traveler's personal data including items such as address, trip records, and profile data.
Traveler Information for Media	General traveler information regarding incidents, unusual traffic conditions, transit issues, or other advisory information that has been desensitized and provided to the media.
Traveler Inputs	User input from a traveler to summon assistance, request travel information, make a reservation, or request any other traveler service.
Traveler Interface Updates	Visual or audio information (e.g., routes, messages, guidance, emergency information) that is provided to the traveler.

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Traveler Payment Information	Information provided for payment of road use charges, tolls or parking fees including identification that can be used to identify the payment account or source and related vehicle and service information that are used to determine the type and price of service requested. The information exchange normally supports an account debit to pay fees, but an account credit may be initiated where pricing strategies include incentives.
Traveler Payment Request	Request for information supporting payments. For fee structures that include incentives, the request may support either an account debit or an account credit or reimbursement.
Traveler Profile	Information about a traveler including equipment capabilities, personal preferences, and traveler alert subscriptions.
Traveler Request	A request for traveler information including traffic, transit, toll, parking, road weather conditions, event, and passenger rail information. The request identifies the type of information, the area of interest, parameters that are used to prioritize or filter the returned information, and sorting preferences.
Trigger Area	A geographic area a commercial motor vehicle crosses into, which initiates a request to compile and transmit a safety data message. May be associated with a time period.
Trigger Area Definition	Information that defines the desired trigger area for wireless roadside inspection safety data message submission.
Trigger Area Notification	Notification to activate wireless roadside inspection safety data message collection.
Trigger Control	Controls to enable or disable a particular trigger.
Trip Confirmation	Acknowledgement by the driver/traveler of acceptance of a trip plan with associated personal and payment information required to confirm reservations. Conversely, this flow may also reject the proposed trip plan. Confirmations include the selected route and subsequent trip confirmation messages will be issued for route changes.
Trip Declaration Identifiers	Specific identifiers extracted from notification containing information regarding pending commercial freight shipment into the U.S. Includes carrier, vehicle, and driver identification data.
Trip Identification Number	The unique trip load number for a specific cross-border shipment.
Trip Identification Number Input	Commercial vehicle driver input containing the unique trip load number for a specific cross-border shipment.
Trip Log	Driver's daily log, vehicle location, mileage, and trip activity (includes screening, inspection, and border clearance event data as well as fare payments). The request flow is not explicitly shown.
Trip Log Information	This flow represents the tactile or auditory interface with ITS equipment containing the information entered into the trip log, or request for update.
Trip Log Request	Request for trip log.
Trip Plan	A travel itinerary covering single or multimodal travel. The itinerary identifies a route and associated traveler information and instructions identifying recommended trip modes (including

Information Flow	Flow Definition
	indoor and outdoor wayfinding) and transfer information, ride sharing options, and transit and parking reservation information.
Trip Request	Request for trip planning services that identifies the trip origin, destination(s), timing, preferences, and constraints. The request may also include the requestor's location or a request for transit and parking reservations, electric charging station access, and ridesharing options associated with the trip.
User VMT Account Reports	Reports on VMT charges.
User VMT Account Setup	Billing information, vehicle information (or registration information), and requests for reports.
Variable Speed Limit Control	Information used to configure and control variable speed limit systems including the equipment used to provide current speed limits and other information to drivers.
Variable Speed Limit Status	Current operating status of the variable speed limit systems including the state of the equipment.
Vehicle Characteristics	The physical or visible characteristics of individual vehicles that can be used to detect, classify, and monitor vehicles and imaged to uniquely identify vehicles.
Vehicle Control	Control commands issued to vehicle actuators that control steering, throttle, and braking and other related commands that support safe transition between manual and automated vehicle control. This flow can also deploy restraints and other safety systems when a collision is unavoidable.
Vehicle Control Coordination	Coordination of control commands between leader and follower vehicles allowing vehicles to join and separate from groups of cooperative vehicles, sharing performance capabilities, and coordinating maneuvers between lead and following vehicles.
Vehicle Diagnostics Data	Information about the vehicle and its current operational status that supports vehicle performance monitoring, service, and repair. The flow identifies the vehicle and vehicle type and provides information about the vehicle's current operational status, the current performance of engine-related and other components, and notification of any identified malfunctions.
Vehicle Emissions Data	Measured emissions of specific vehicles comprised of exhaust pollutants including hydrocarbons, carbon monoxide, and nitrogen oxides.
Vehicle Intersection Safety Data	Vehicle path and acceleration data provided by vehicles approaching or occupying an intersection. It identifies the intersection, vehicle position and motion, the anticipated lane and movement that will be used in the intersection, and notification of potential violations or other detected safety hazards.
Vehicle Occupancy	The number of occupants in a vehicle.
Vehicle Parking Information	Parking information for in-vehicle display that is provided to vehicles approaching or in parking facilities. The information provided would include static sign information (e.g., guide signs, service signs, height, width, and weight restrictions, and directional signs) and dynamic information (e.g., current parking availability and locations).

Information Flow	Flow Definition
Vehicle Payment Information	Information provided for payment of tolls, parking, and other transportation fees including identification that can be used to identify the payment account or source and related vehicle and service information that are used to determine the type and price of service requested.
Vehicle Payment Request	Request for information supporting toll and parking payments.
Vehicle Payment Update	Data written to vehicle equipment to support electronic toll collection or parking payment.
Vehicle Profile	Information about a vehicle such as vehicle make and model, fuel type, engine type, size and weight, vehicle performance and level of control automation, average emissions, average fuel consumption, passenger occupancy, or other data that can be used to classify vehicle eligibility for access to specific lanes, road segments, or regions or participation in cooperative vehicle control applications.
Vehicle Safety Data	Vehicle safety data indicating vehicle location, vehicle motion (speed, heading, acceleration), vehicle control (brakes, steering, throttle, exterior lights), basic vehicle characteristics (length, width). May also include additional vehicle status (e.g., anti-lock brake activation, stability control system activation).
Vehicle Signage Data	In-vehicle signing data that augments regulatory, warning, and informational road signs and signals. The information provided would include static sign information (e.g., stop, curve warning, guide signs, service signs, and directional signs) and dynamic information (e.g., local traffic and road conditions, restrictions, vehicle requirements, work zones, detours, closures, advisories, and warnings).
Video Surveillance Control	Information used to configure and control video surveillance systems.
Violation Notification	Notification to enforcement agency of detected traffic violations. This notification identifies the vehicle and documents the infraction date, time, and location, the violation, and associated information that documents the violation. For example, for a speed violation, this flow includes the measured speed and current posted speed limit.
VMT Cost Data	VMT charges per link.
VMT Data	A vehicle's road use history that records where the vehicle has traveled over time. Optionally includes vehicle speeds as well as distance traveled for some applications. Information is accurate enough to distinguish between adjacent roads, adjacent lanes, and identify direction of travel on the roads.
VMT Data for ISP	Road use charge rate policies for distribution to travelers.
VMT Equipment Fault	Provides fault status of the VMT data collection equipment in a vehicle and vehicle image and other characteristics to allow independent identification of the vehicle and its owner.
VMT Equipment Status	Provides an indication of the operational status of the VMT data collection equipment in a vehicle. Also indicates vehicle ID (VIN) so that the registration of the equipment to a specific vehicle can

Information Flow	Flow Definition
	be verified and confirmed by comparison with vehicle characteristics.
VMT Payment Coordination	Coordinate apportionment of VMT data or charges between jurisdictions (e.g., federal government, states, various jurisdictions that might be public or private within a state). Apportionment reconciliation includes either sharing information about VMT data in other jurisdictions (so that the Other Payment Administration subsystems can make appropriate charges), or sharing revenue collected. When sharing revenue, this flow also includes VMT charging rate policies.
Voice-Based Alert Notification	Information to be distributed to the traveling public via voice regarding a major emergency such as a natural or man-made disaster, civil emergency, severe weather, or child abduction. The flow may identify the alert originator, the nature of the emergency, the geographic area affected by the emergency, the effective time period, and information and instructions necessary for the public to respond to the alert. The content of this information flow may be specially formatted for voice-based traveler information.
Voice-Based Traveler Information	Traveler information sent to the telecommunications systems for traveler information terminator. This flow may represent the bulk transfer of traveler information, including traffic conditions, incident information, transit information and weather and road condition information. It may be specially formatted for voice-based traveler information.
Voice-Based Traveler Request	The electronic traveler information request from the telecommunications systems for traveler information terminator. It may be specifically formatted for voice-based traveler requests. The request can be a general subscription intended to initiate a continuous or regular data stream, or a specific request intended to initiate a one-time response from the recipient.
Weather Archive Data	Accumulated forecasted and current weather data (e.g., temperature, pressure, wind speed, wind direction, humidity, precipitation, visibility, light conditions, etc.) as well as qualified environmental sensor data. Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.
Weather Information	Accumulated forecasted and current weather data (e.g., temperature, pressure, wind speed, wind direction, humidity, precipitation, visibility, light conditions, etc.).
Weigh-in-Motion Information	Information from commercial vehicle virtual weigh-in-motion systems including vehicle weight, vehicle dimensions, vehicle identification and driver identification.
Wide area Statistical Pollution Information	Aggregated region-wide measured emissions data and possible pollution incident information.
Work Plan Coordination	Coordination of work plan schedules and activities between maintenance and construction organizations or systems. This information includes the work plan schedules and comments and

Information Flow	Flow Definition
	suggested changes that are exchanged as work plans are coordinated and finalized.
Work Plan Feedback	Comments and suggested changes to proposed construction and maintenance work schedules and activities. This information influences work plan schedules so that they minimize impact to other system operations and the overall transportation system.
Work Plan Information	Information documenting planning elements to include tasks, milestones, deliverables, resources, budgetary requirements and a timeline to tie it all together.
Work Zone Information	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 may be augmented with images that provide a visual indication of current work zone status and traffic impacts.
Work Zone Status	Current work zone status including current location (and future locations for moving work zones), impact to the roadway, required lane shifts, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits.
Work Zone Warning	Warnings provided to field personnel, indicating a work zone emergency or safety issue such as the intrusion of a vehicle into the work zone area or movement of personnel into the travel lanes.
Work Zone Warning Device Control	Data used to configure and control work zone safety monitoring and warning devices.
Work Zone Warning Notification	Notification of a work zone emergency or safety issue. This flow identifies that a work zone emergency or safety issue has occurred so that warnings may be generated by more than one system in the work zone.
Work Zone Warning Status	Status of a work zone safety monitoring and warning devices. This flow documents system activations and includes additional supporting information (e.g., an image) that allows verification of the alarm.