APPENDIX D
Physical Objects

Physical Object Kind	Physical Object Name	Physical Object Type	Physical Object Class	Physical Object Description	Physical Object Domain
Subsystem	Archived Data System	System	Support	The 'Archived Data System' collects, archives, manages, and distributes data generated from ITS sources for use in transportation administration, policy evaluation, safety, planning, performance monitoring, program assessment, operations, and research applications. The data received is formatted and tagged with attributes that define the data source, conditions under which it was collected, data transformations, and other information (i.e. meta data) necessary to interpret the data. The archive can fuse ITS generated data with data from non-ITS sources and other archives to generate information products utilizing data from multiple functional areas, modes, and jurisdictions. The archive prepares data products that can serve as inputs to federal, state, and local data reporting systems. The 'Archived Data System' may reside within an operational center and provide focused access to a particular agency's data archives. Alternatively, it may operate as a distinct center that collects data from multiple agencies and sources and provides a general data warehouse service.	Transportation
Subsystem	Border Inspection Administration Center	System	Center	Border Inspection Administration Center' represents back-office systems and databases run by domestic and foreign governmental agencies responsible for the regulation of trade, and the enforcement of customs and immigration laws. These agencies include U.S. Department of Homeland Security (DHS) and its counterparts in Canada and Mexico. DHS includes components like Customs and Border Protection (CBP), Immigration and Customs Enforcement (ICE), and Transportation Security Administration (TSA). Other agencies include secondary trade agencies (e.g., U.S. Food and Drug Administration, U.S. Department of Agriculture, other USDOT departments, etc.), and agencies from other trading nations. The systems they manage coordinate activities related to the border crossings. These systems support import/export cargo processing and enforcement operations at the border, including programs such as FAST, Automated Commercial Environment (ACE), Nexus (Canada), SENTRI (Mexico), and US-VISIT.	Transportation
Subsystem	Border Inspection System	System	Field	Border Inspection System' represents data systems used at the border for the inspection of people or goods. It supports immigration, customs (trade), agricultural, and FDA inspections as applicable. It includes sensors and surveillance systems to identify and classify drivers and their cargo as they approach a border crossing, the systems used to interface with the back-office administration systems and provide information on status of the crossing or events.	Transportation
Subsystem	Center	System	Center	This general physical object is used to model core capabilities that are common to any center.	Transportation
Subsystem	Commercial Vehicle Administration Center	System	Center	The 'Commercial Vehicle Administration Center' performs administrative functions supporting credentials, tax, and safety regulations associated with commercial vehicles. It issues credentials, collects fees and taxes, and supports enforcement of credential requirements. It communicates with motor carriers to process credentials applications and collect fuel taxes, weight/distance taxes, and other taxes and fees associated with commercial vehicle operations. It also receives applications for, and issues special Oversize/Overweight and HAZMAT permits in coordination with cognizant authorities. It coordinates with other Commercial Vehicle Administration Centers (in other states/regions) to support nationwide access to credentials and safety information for administration and enforcement functions. It communicates with field equipment to enable credential checking and safety information collection at the roadside. It makes safety information available to qualified stakeholders to identify carriers and drivers that operate unsafely.	Transportation
Subsystem	Commercial Vehicle Check Equipment	System	Field	Commercial Vehicle Check Equipment' supports automated vehicle identification at mainline speeds for credential checking, roadside safety inspections, and weigh-in-motion using two-way data exchange. These capabilities include providing warnings to the commercial vehicle drivers, their fleet managers, and proper authorities of any safety problems that have been identified, accessing and examining historical safety data, and automatically deciding whether to allow the vehicle to pass or require it to stop with operator manual override. Commercial Vehicle Check Equipment also provides supplemental inspection services such as expedited brake inspections, the use of operator hand-held devices, mobile screening sites, on-board safety database access, and the enrollment of vehicles and carriers in the electronic clearance program.	Transportation
Subsystem	Commercial Vehicle OBE	System	Vehicle	The Commercial Vehicle On-Board Equipment (OBE) resides in a commercial vehicle and provides the sensory, processing, storage, and communications functions necessary to support safe and efficient commercial vehicle operations. It provides two-way communications between the commercial vehicle drivers, their fleet managers, attached freight equipment, and roadside officials. A separate 'Vehicle OBE' physical object supports vehicle safety and driver information capabilities that apply to all vehicles, including commercial vehicles. The Commercial Vehicle OBE supplements these general ITS capabilities with capabilities that are specific to commercial vehicles.	Transportation

Physical Object Kind	Physical Object Name	Physical Object Type	Physical Object Class	Physical Object Description	Physical Object Domain
Subsystem	Connected Vehicle Roadside Equipment	System	Field	Connected Vehicle Roadside Equipment' (CV RSE) represents the Connected Vehicle roadside devices that are used to send messages to, and receive messages from, nearby vehicles using Dedicated Short Range Communications (DSRC) or other alternative wireless communications technologies. Communications with adjacent field equipment and back office centers that monitor and control the RSE are also supported. This device operates from a fixed position and may be permanently deployed or a portable device that is located temporarily in the vicinity of a traffic incident, road construction, or a special event. It includes a processor, data storage, and communications capabilities that support secure communications with passing vehicles, other field equipment, and centers.	Transportation
Subsystem	Data Distribution System	System	Support	The 'Data Distribution System' collects, processes, and distributes ITS data, connecting data producers with data consumers and facilitating data exchange.	Communication
Subsystem	Emergency Management Center	System	Center	The 'Emergency Management Center' represents systems that support incident management, disaster response and evacuation, security monitoring, and other security and public safety-oriented ITS applications. It includes the functions associated with fixed and mobile public safety communications centers including public safety call taker and dispatch centers operated by police (including transit police), fire, and emergency medical services. It includes the functions associated with Emergency Operations Centers that are activated at local, regional, state, and federal levels for emergencies and the portable and transportable systems that support Incident Command System operations at an incident. This Center also represents systems associated with towing and recovery, freeway service patrols, HAZMAT response teams, and mayday service providers. It manages sensor and surveillance equipment used to enhance transportation security of the roadway infrastructure (including bridges, tunnels, interchanges, and other key roadway segments) and the public transportation system (including transit vehicles, public areas such as transit stops and stations, facilities such as transit yards, and transit infrastructure such as rail, bridges, tunnels, or bus guideways). It provides security/surveillance services to improve traveler security in public areas not a part of the public transportation system. It monitors alerts, advisories, and other threat information and prepares for and responds to identified emergencies. It coordinates emergency response involving multiple agencies with peer centers. It stores, coordinates, and utilizes emergency response and evacuation plans to facilitate this coordinated response. Emergency situation information including damage assessments, response status, evacuation information, and resource information are shared The Emergency Management Center also provides a focal point for coordination of the emergency and evacuation information that is provided to the traveling public, including wide-area alerts when immediate public notification is warranted. It tracks and manages emergency vehicle fleets using real-time road network status and routing information from the other centers to aid in selecting the emergency vehicle(s) and routes, and works with other relevant centers to tailor traffic control to support emergency vehicle ingress and egress, implementation of special traffic restrictions and closures, evacuation traffic control plans, and other special strategies that adapt the transportation system to better meet the unique demands of an emergency.	Transportation
Subsystem	Emergency Vehicle OBE	System	Vehicle	The Emergency Vehicle On-Board Equipment (OBE) resides in an emergency vehicle and provides the processing, storage, and communications functions that support public safety-related connected vehicle applications. It represents a range of vehicles including those operated by police, fire, and emergency medical services. In addition, it represents other incident response vehicles including towing and recovery vehicles and freeway service patrols. It includes two-way communications to support coordinated response to emergencies. A separate 'Vehicle OBE' physical object supports the general vehicle safety and driver information capabilities that apply to all vehicles, including emergency vehicles. The Emergency Vehicle OBE supplements these general capabilities with capabilities that are specific to emergency vehicles.	Transportation
Subsystem	Emissions Management Center	System	Center	The 'Emissions Management Center' provides the capabilities for air quality managers to monitor and manage air quality. These capabilities include collecting emissions data from distributed emissions sensors (included in ITS Roadway Equipment) and directly from connected vehicles. The sensors monitor general air quality and also monitor the emissions of individual vehicles on the roadway. The measures are collected, processed, and used to support environmental monitoring applications.	Transportation

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Subsystem	Field Maintenance Equipment	System	Field	Field Maintenance Equipment' represents the portable equipment used by field personnel to locally troubleshoot, initialize, reprogram, and test infrastructure equipment. It may include a laptop, specialized diagnostics tools, or any other general purpose or specialized equipment that is interfaced locally to infrastructure equipment to support maintenance and repair.	Transportation
Subsystem	Fleet and Freight Management Center	System	Center	The 'Fleet and Freight Management Center' provides the capability for commercial drivers and fleet-freight managers to receive real-time routing information and access databases containing vehicle and/or freight equipment locations as well as carrier, vehicle, freight equipment and driver information. The 'Fleet and Freight Management Center' also provides the capability for fleet managers to monitor the safety and security of their commercial vehicle drivers and fleet.	Transportation
Subsystem	Freight Distribution and Logistics Center	System	Center	The 'Freight Distribution and Logistics Center' provides intermodal logistics support and support for the efficient distribution of freight across transport systems and modes. This can include consolidation arrangements, warehousing, and consignor-to-consignee intermodal shipping arrangements. These capabilities may be provided as part of intermodal fleet management activities or can be provided by an independent logistics specialist.	Transportation
Subsystem	Freight Equipment	System	Vehicle	Freight Equipment' represents a freight container, intermodal chassis, or trailer and provides sensory, processing, storage, and communications functions necessary to support safe, secure and efficient freight operations. It provides equipment safety data and status and can alert the appropriate systems of an incident, breach, or tamper event. It also provides accurate position information to support in-transit visibility of freight equipment.	Transportation
Subsystem	ITS Roadway Equipment	System	Field	ITS Roadway Equipment' represents the ITS equipment that is distributed on and along the roadway that monitors and controls traffic and monitors and manages the roadway itself. This physical object includes traffic detectors, environmental sensors, traffic signals, highway advisory radios, dynamic message signs, CCTV cameras and video image processing systems, grade crossing warning systems, and ramp metering systems. Lane management systems and barrier systems that control access to transportation infrastructure such as roadways, bridges and tunnels are also included. This object also provides environmental monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included.	Transportation
Subsystem	Maint and Constr Management Center	System	Center	The 'Maint and Constr Management Center' monitors and manages roadway infrastructure construction and maintenance activities. Representing both public agencies and private contractors that provide these functions, this physical object manages fleets of maintenance, construction, or special service vehicles (e.g., snow and ice control equipment). The physical object receives a wide range of status information from these vehicles and performs vehicle dispatch, routing, and resource management for the vehicle fleets and associated equipment. The physical object participates in incident response by deploying maintenance and construction resources to an incident scene, in coordination with other center physical objects. The physical object manages equipment at the roadside, including environmental sensors and automated systems that monitor and mitigate adverse road and surface weather conditions. It manages the repair and maintenance of both non-ITS and ITS equipment including the traffic controllers, detectors, dynamic message signs, signals, and other equipment associated with the roadway infrastructure. Weather information is collected and fused with other data sources and used to support advanced decision support systems. The physical object remotely monitors and manages ITS capabilities in work zones, gathering, storing, and disseminating work zone information to other systems. It manages traffic in the vicinity of the work zone and advises drivers of work zone status (either directly at the roadside or through an interface with the Transportation Information Center or Traffic Management Center physical objects.) Construction and maintenance activities are tracked and coordinated with other systems, improving the quality and accuracy of information available regarding closures and other roadway construction and maintenance activities.	Transportation

Physical Object Kind	Physical Object Name	Physical Object Type	Physical Object Class	Physical Object Description	Physical Object Domain
Subsystem	Maint and Constr Vehicle OBE	System	Vehicle	The 'Maint and Constr Vehicle OBE' resides in a maintenance, construction, or other specialized service vehicle or equipment and provides the processing, storage, and communications functions necessary to support highway maintenance and construction. All types of maintenance and construction vehicles are covered, including heavy equipment and supervisory vehicles. The MCV OBE provides two-way communications between drivers/operators and dispatchers and maintains and communicates current location and status information. A wide range of operational status is monitored, measured, and made available, depending on the specific type of vehicle or equipment. A snow plow for example, would monitor whether the plow is up or down and material usage information. The Maint and Constr Vehicle OBE may also contain capabilities to monitor vehicle systems to support maintenance of the vehicle itself and include sensors that monitor environmental conditions such as road condition and surface weather information. This can include a diverse set of mobile environmental sensing platforms, including wheeled vehicles and any other vehicle that collects and reports environmental information. A separate 'Vehicle OBE' physical object supports the general vehicle safety and driver information capabilities that apply to all vehicles, including maintenance and construction vehicles. The Maint and Constr Vehicle OBE supplements these general capabilities with capabilities that are specific to maintenance and construction vehicles.	Transportation
Subsystem	Map Update System	System	Support	The 'Map Update System' represents a provider of map databases used to support ITS services. It supports the provision of the map data that are used directly by vehicles (e.g., roadway and intersection geometry data sets), travelers (e.g., navigable maps used for route guidance and display maps used at traveler information points), system operators (e.g., map data used by Traffic Operators to monitor and manage the road network, and map data used by Fleet Managers to manage a vehicle fleet). It may represent a third-party provider or an internal organization that produces map data for agency use. Products may include simple display maps, map data sets that define detailed road network topology and geometry, or full geographic information system databases that are used to support planning and operations.	Transportation
Subsystem	Parking Management System	System	Field	The Parking Management System provides electronic monitoring and management of parking facilities. It supports an I2V link to the Vehicle that allows electronic collection of parking fees and monitors and controls parking meters that support conventional parking fee collection. It also includes the instrumentation, signs, and other infrastructure that monitors parking lot usage and provides local information about parking availability and other general parking information. This portion of the functionality must be located in the parking facility where it can monitor, classify, and share information with customers and their vehicles. It also interfaces with the financial infrastructure and broadly disseminates parking information to other operational centers in the region. Note that the latter functionality may be located in a back office, remote from the parking facility.	Transportation
Subsystem	Personal Information Device	System	Traveler	The 'Personal Information Device' provides the capability for travelers to receive formatted traveler information wherever they are. Capabilities include traveler information, trip planning, and route guidance. Frequently a smart phone, the Personal Information Device provides travelers with the capability to receive route planning and other personally focused transportation services from the infrastructure in the field, at home, at work, or while en-route. Personal Information Devices may operate independently or may be linked with connected vehicle on-board equipment.	Transportation
Subsystem	Service Monitor System	System	Support	The 'Service Monitor System' represents one or more center-based systems that provide monitoring, management and control services necessary to other applications and/or devices operating within the Connected Vehicle Environment. These support services enable other applications to provide transportation services.	Transportation
Subsystem	Traffic Management Center	System	Center	The 'Traffic Management Center' monitors and controls traffic and the road network. It represents centers that manage a broad range of transportation facilities including freeway systems, rural and suburban highway systems, and urban and suburban traffic control systems. It communicates with ITS Roadway Equipment and Connected Vehicle Roadside Equipment (RSE) to monitor and manage traffic flow and monitor the condition of the roadway, surrounding environmental conditions, and field equipment status. It manages traffic and transportation resources to support allied agencies in responding to, and recovering from, incidents ranging from minor traffic incidents through major disasters.	Transportation

Physical Object Kind	Physical Object Name	Physical Object Type	Physical Object Class	Physical Object Description	Physical Object Domain
Subsystem	Transit Management Center	System	Center	The 'Transit Management Center' manages transit vehicle fleets and coordinates with other modes and transportation services. It provides operations, maintenance, customer information, planning and management functions for the transit property. It spans distinct central dispatch and garage management systems and supports the spectrum of fixed route, flexible route, paratransit services, transit rail, and bus rapid transit (BRT) service. The physical object's interfaces support communication between transit departments and with other operating entities such as emergency response services and traffic management systems.	Transportation
Subsystem	Transit Vehicle OBE	System	Vehicle	The Transit Vehicle On-Board equipment (OBE) resides in a transit vehicle and provides the sensory, processing, storage, and communications functions necessary to support safe and efficient movement of passengers. The types of transit vehicles containing this physical object include buses, paratransit vehicles, light rail vehicles, other vehicles designed to carry passengers, and supervisory vehicles. It collects ridership levels and supports electronic fare collection. It supports a traffic signal prioritization function that communicates with the roadside physical object to improve on-schedule performance. Automated vehicle location enhances the information available to the transit operator enabling more efficient operations. On-board sensors support transit vehicle maintenance. The physical object supports on-board security and safety monitoring. This monitoring includes transit user or vehicle operator activated alarms (silent or audible), as well as surveillance and sensor equipment. The surveillance equipment includes video (e.g. CCTV cameras), audio systems and/or event recorder systems. It also furnishes travelers with real-time travel information, continuously updated schedules, transfer options, routes, and fares. A separate 'Vehicle OBE' physical object supports the general vehicle safety and driver information capabilities that apply to all vehicles, including transit vehicles. The Transit Vehicle OBE supplements these general capabilities with capabilities that are specific to transit vehicles.	Transportation
Subsystem	Transportation Information Center	System	Center	The 'Transportation Information Center' collects, processes, stores, and disseminates transportation information to system operators and the traveling public. The physical object can play several different roles in an integrated ITS. In one role, the TIC provides a data collection, fusing, and repackaging function, collecting information from transportation system operators and redistributing this information to other system operators in the region and other TICs. In this information redistribution role, the TIC provides a bridge between the various transportation systems that produce the information and the other TICs and their subscribers that use the information. The second role of a TIC is focused on delivery of traveler information to subscribers and the public at large. Information provided includes basic advisories, traffic and road conditions, transit schedule information, yellow pages information, ride matching information, and parking information. The TIC is commonly implemented as a website or a web-based application service, but it represents any traveler information distribution service.	Transportation
Subsystem	Traveler Support Equipment	System	Traveler	Traveler Support Equipment' provides access to traveler information at transit stations, transit stops, other fixed sites along travel routes (e.g., rest stops, merchant locations), and major trip generation locations such as special event centers, hotels, office complexes, amusement parks, and theaters. Traveler information access points include kiosks and informational displays supporting varied levels of interaction and information access. At transit stops this might be simple displays providing schedule information and imminent arrival signals. This may be extended to include multi-modal information including traffic conditions and transit schedules to support mode and route selection at major trip generation sites. Personalized route planning and route guidance information can also be provided based on criteria supplied by the traveler. It also supports service enrollment and electronic payment of transit fares. In addition to the traveler information provision, it also enhances security in public areas by supporting traveler activated silent alarms.	Transportation

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Subsystem	Vehicle OBE	System	Vehicle	The Vehicle On-Board Equipment (OBE) provides the vehicle-based sensory, processing, storage, and communications functions that support efficient, safe, and convenient travel. The Vehicle OBE includes general capabilities that apply to passenger cars, trucks, and motorcycles. Many of these capabilities (e.g., see the Vehicle Safety service packages) apply to all vehicle types including personal vehicles, commercial vehicles, emergency vehicles, transit vehicles, and maintenance vehicles. From this perspective, the Vehicle OBE includes the common interfaces and functions that apply to all motorized vehicles. The radio(s) supporting V2V and V2I communications are a key component of the Vehicle OBE. Both one-way and two-way communications options support a spectrum of information services from basic broadcast to advanced personalized information services. Route guidance capabilities assist in formulation of an optimal route and step by step guidance along the travel route. Advanced sensors, processors, enhanced driver interfaces, and actuators complement the driver information services so that, in addition to making informed mode and route selections, the driver travels these routes in a safer and more consistent manner. This physical object supports all six levels of driving automation as defined in SAE J3016. Initial collision avoidance functions provide 'vigilant co-pilot' driver warning capabilities. More advanced functions assume limited control of the vehicle to maintain lane position and safe headways. In the most advanced implementations, this Physical Object supports full automation of all aspects of the driving task, aided by communications with other vehicles in the vicinity and in coordination with supporting infrastructure subsystems.	Transportation
Terminator	Alerting and Advisory System	System	Center	Alerting and Advisory System' represents the federal, state, and local alerting and advisory systems that provide alerts, advisories, and other potential threat information that is relevant to surface transportation systems. This includes systems such as the Information Sharing and Analysis Centers (ISACS), the National Infrastructure Protection Center (NIPC), the Homeland Security Advisory System (HSAS), and other systems that provide intelligence about potential, imminent, or actual attacks on the transportation infrastructure or its supporting information systems.

This system also represents the early warning and emergency alert systems operated by federal, state, county, and local agencies that provide advisories and alerts regarding all types of emergencies including natural hazards (floods, hurricanes, tornados, earthquakes), accidents (chemical spills, nuclear power plant emergencies) and other civil emergencies such as child abduction alerts that impact transportation system operation and/or require immediate public notification. Note that weather related watches and warnings, such as those issued by the National Hurricane Center, are provided by both this terminator and the Weather Service terminator since many alerting and advisory systems and the National Weather Service both provide severe weather and related hazards information.

The alerts and advisories that are provided by the systems represented by this terminator are based on analysis of potential threat information that is collected from a variety of sources, including information collected by ITS systems. The bidirectional interface with this terminator allows potential threat information that is collected by ITS systems to be provided to the alerting and advisory systems to improve their ability to identify threats and provide useful and timely information.

The types of information provided by this terminator include general assessments and incident awareness information, advisories that identify potential threats or recommendations to increase preparedness levels, alerts regarding imminent or in-progress emergencies, and specific threat information such as visual imagery used for biometric image processing. | Transportation |
| Terminator | Archived Data User System | System | Center | Archived Data User System' represents the systems users employ to access archived data. The general interface provided allows a broad range of users (e.g. planners, researchers, analysts, operators) and their systems (e.g. databases, models, analytical tools, user interface devices) to acquire data and analyses results from the archive. | Transportation |

Physical Object Kind	Physical Object Name	Physical Object Type	Physical Object Class	Physical Object Description	Physical Object Domain
Terminator	Asset Management System	System	Center	Asset Management System' represents the systems that support decision-making for maintenance, upgrade, and operation of physical transportation assets. Asset management integrates and includes the pavement management systems, bridge management systems, and other systems that inventory and manage the highway infrastructure and other transportation-related assets. The types of assets that are inventoried and managed will vary, and may include the maintenance and construction vehicles and equipment as well as 'soft' assets such as human resources and software. Asset management systems monitor the condition, performance, and availability of the infrastructure and evaluate and prioritize alternative reconstruction, rehabilitation, and maintenance strategies.	Transportation
Terminator	Basic Maint and Constr Vehicle	System	Vehicle	The 'Basic Maint and Constr Vehicle' represents the maintenance, construction, or other specialized vehicle or equipment that hosts the on-board equipment that provides ITS functionality. It includes the databus, actuators, and other access points that are used by the on-board equipment to monitor and control the host vehicle systems. For example, the interface to this physical object is used to control the operation of the snow plow and monitor the amount of materials (e.g., sand or salt) on-board.	Transportation
Terminator	Basic Transit Vehicle	System	Vehicle	The 'Basic Transit Vehicle' represents the transit vehicle that hosts the on-board equipment that provides ITS functions. It includes a specialized and extended databus that is subject to different vehicle databus standards and hosts a broad range of components that are unique to a transit vehicle including the farebox and associated electronics, passenger counters, and transit security systems. The Transit Vehicle may represent a bus, paratransit vehicle, light rail vehicle, or other vehicle designed to carry passengers.	Transportation
Terminator	Basic Vehicle	System	Vehicle	Basic Vehicle' represents a complete operating vehicle. It includes the vehicle platform that interfaces with and hosts ITS electronics and all of the driver convenience and entertainment systems, and other non-ITS electronics on-board the vehicle. Interfaces represent both internal on-board interfaces between ITS equipment and other vehicle systems and other passive and active external interfaces or views of the vehicle that support vehicle/traffic monitoring and management. External interfaces may also represent equipment that is carried into the vehicle (e.g., a smartphone that is brought into the vehicle). Internal interfaces are often implemented through a vehicle databus, which is also included in this object. Note that 'Vehicle' represents the general functions and interfaces that are associated with personal automobiles as well as commercial vehicles, emergency vehicles, transit vehicles, and other specialized vehicles.	Transportation
Terminator	CVO Information Requestor Center	System	Center	CVO Information Requestor Center' represents any organization or individual requesting information from the CVO Information Exchange network. It typically represents insurance companies requesting safety information on carriers, a driver requesting his/her own driving record, etc.	Transportation
Terminator	DMV	System	Center	The 'DMV' is a specific (state) public organization responsible for registering vehicles, e.g., the Department of Motor Vehicles.	Transportation
Terminator	Driver Identification Card	System	Traveler	Driver Identification Card' represents the card or device that enables the transfer of electronic identification information for a driver. This may include license information, biometrics, and other data to identify the driver. Typically the card will be issued by a government agency (e.g. a state driver licensing agency).	Transportation
Terminator	Emergency Telecommunications System	System	Center	The 'Emergency Telecommunications System' represents the telecommunications systems that connect a caller with a Public Safety Answering Point (PSAP). These systems transparently support priority wireline and wireless caller access to the PSAP through 9-1-1 and other access mechanisms like 7 digit local access numbers, and motorist aid call boxes. The calls are routed to the appropriate PSAP, based on caller location when this information is available. When available, the caller's location and call-back number are also provided to the PSAP by this interface. This facility may also be used to notify the public - residents and businesses - of emergency situations using a Reverse 911 capability.	Transportation
Terminator	Enforcement Center	System	Center	The 'Enforcement Center' represents the systems that receive reports of violations detected by various ITS facilities including individual vehicle emissions, lane violations, toll violations, CVO violations, etc.	Transportation
Terminator	Financial Center	System	Center	The 'Financial Center' represents the organization that handles electronic fund transfer requests to enable the transfer of funds from the user of the service to the provider of the service. The functions and activities of financial clearinghouses are covered by this physical object.	Transportation
Terminator	Intermodal Customer System	System	Center	The 'Intermodal Customer System' represents organizations that engage in the shipment of freight, either originator (consigner or shipper) or recipient of the cargo shipment. They enable the movement of goods on routes that require the use of other modes of transportation such as heavy rail, air, sea, etc. The Intermodal Customer System includes those personnel responsible for the movement of freight across international borders.	Transportation

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Terminator	Media	System	Center	Media' represents the information systems that provide traffic reports, travel conditions, and other transportation-related news services to the traveling public through radio, TV, and other media. Traffic and travel advisory information that are collected by ITS are provided to this object. It is also a source for traffic flow information, incident and special event information, and other events that may have implications for the transportation system.	Transportation
Terminator	Other Authorizing Centers	Other System	Center	Other Authorizing Centers' provides a source and destination for information flows between multiple authorizing centers that manage permissions for the Connected Vehicle Environment. The interface represented by this object enables coordination of permissions between centers in different regions, jurisdictions, or application areas.	Transportation
Terminator	Other Connected Vehicle Roadside Equipment	Other System	Field	Representing another Connected Vehicle Roadside Equipment, 'Other Connected Vehicle Roadside Equipment' supports peer to peer communication and direct coordination between RSEs. It provides a source and destination for information that may be exchanged between RSEs.	Transportation
Terminator	Other Data Distribution Systems	Other System	Support	Representing another Data Distribution System, 'Other Data Distribution Systems' is intended to provide a source and destination for information exchange between peer (e.g. inter-regional) data distribution systems. It supports modeling of projects or regions that include multiple interconnected data distribution systems that together manage data distribution in the connected vehicle environment.	Communication
Terminator	Other Data Sources	System	Support	Other Data Sources' represents the myriad systems and databases containing data not generated by ITS that can provide predefined data sets to the ITS archive. It can provide economic, cost, demographic, land use, law enforcement, and other data that is not collected by ITS systems and would otherwise be unavailable within an ITS data archive.	Transportation
Terminator	Other Emergency Management Centers	Other System	Center	Other Emergency Management Centers' provides a source and destination for information flows between various communications centers operated by public safety agencies, emergency management agencies, other allied agencies, and private companies that participate in coordinated management of transportation-related incidents, including disasters. The interface represented by this object enables emergency management activities to be coordinated across jurisdictional boundaries and between functional areas, supporting requirements for general networks connecting many allied agencies. It also supports interface to other allied agencies like utility companies that also participate in the coordinated response to selected highway-related incidents.	Transportation
Terminator	Other ITS Roadway Equipment	Other System	Field	Representing another set of ITS Roadway Equipment, 'Other ITS Roadway Equipment' supports 'field device' to 'field device' communication and coordination, and provides a source and destination for information that may be exchanged between ITS Roadway Equipment. The interface enables direct coordination between field equipment. Examples include the direct interface between sensors and other roadway devices (e.g., Dynamic Message Signs) and the direct interface between roadway devices (e.g., between a Signal System Master and Signal System Local equipment) or a connection between an arterial signal system master and a ramp meter controller.	Transportation
Terminator	Other Maint and Constr Mgmt Centers	Other System	Center	Representing another Maintenance and Construction Management Center, 'Other Maint and Constr Mgmt Centers' is intended to provide a source and destination for ITS information flows between maintenance and construction management functions. It enables maintenance and construction operations to be coordinated across jurisdictions or between public and private sectors.	Transportation
Terminator	Other Payment Administration Centers	Other System	Center	Representing another Payment Administration Center, 'Other Payment Administration Centers' is intended to provide a source and destination for ITS information flows between payment administration functions. This interface allows reconciliation of toll charges and other payments across different agencies by allowing the exchange of information about clients who have incurred charges in jurisdictions other than their own (billing) customer service center. This interface enables apportioning charges and 'reciprocity' between participating customer service centers.	Transportation
Terminator	Other Traffic Management Centers	Other System	Center	Representing another Traffic Management Center, 'Other Traffic Management Centers' is intended to provide a source and destination for information exchange between peer (e.g. inter-regional) traffic management functions. It enables traffic management activities to be coordinated across different jurisdictional areas.	Transportation
Terminator	Other Transit Management Centers	Other System	Center	Representing another transit operations center, 'Other Transit Management Centers' is intended to provide a source and destination for information flows between peer transit management centers. It enables transit management activities to be coordinated across geographic boundaries or jurisdictions.	Transportation

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Terminator	Other Transportation Information Centers	Other System	Center	Representing another Transportation Information Center, this object is intended to provide a source and destination for ITS information flows between peer information and service provider functions. It enables cooperative information sharing between providers as conditions warrant.	Transportation
Terminator	Payment Device	System	Traveler	The 'Payment Device' enables the electronic transfer of funds from the user of a service (I.e. a traveler) to the provider of the service. Potential implementations include smart cards that support payment for products and services, including transportation services and general purpose devices like smart phones that support a broad array of services, including electronic payment. In addition to user account information, the payment device may also hold and update associated user information such as personal profiles, preferences, and trip histories.	Transportation
Terminator	Social Media	System	Center	Social Media' provides forums for social interaction and opportunities for gathering and distributing traveler information. These sites provide crowd sourced information and the opportunity to provide traveler information to specific communities of interest. Examples include Facebook, Twitter, and LinkedIn. Each social media platform offers its own tools and API that allow integration of web content into a shared social media experience.	Transportation
Terminator	Surface Transportation Weather Service	System	Center	The 'Surface Transportation Weather Service' represents the providers of value-added sector-specific meteorological services. These providers utilize National Weather Service data and predictions (including the qualified environmental data from the Clarus system), road condition information and local environmental data provided by traffic management or maintenance organizations, and their own models to provide surface transportation related weather observations and forecasts including pavement temperature and conditions.	Transportation
Terminator	Traveler	Human	Traveler	The 'Traveler' represents any individual who uses transportation services. The interfaces to the traveler provide general pre-trip and en-route information supporting trip planning, personal guidance, and requests for assistance in an emergency that are relevant to all transportation system users. It also represents users of a public transportation system and addresses interfaces these users have within a transit vehicle or at transit facilities such as roadside stops and transit centers.	Transportation
Terminator	Traveler Card	System	Traveler	The 'Traveler Card' stores traveler identification information, including biometric information, that can be used in trusted traveler programs to expedite clearance through security checkpoints at borders or security-critical areas.	Transportation
Terminator	Traveler Information Voice System	System	Center	The 'Traveler Information Voice System' provides the caller interface and voice processing (voice recognition/synthesis) that supports voice-enabled traveler telephone information systems. It provides wireline and wireless caller access to 511 systems and other telephone access mechanisms like 7 or 10 digit local access numbers. It represents the boundary of the architecture where a call is received and processed and includes voice portal capabilities in scenarios where a distinct voice portal exists between ITS Centers and telecommunications providers. The terminator gathers traveler information, alerts, and advisories from information service provider(s) and uses this information to support voice-based interactions with a traveler.	Transportation
Terminator	Vehicle Location and Time Data Source	System	Vehicle	The 'Vehicle Location and Time Data Source' provides accurate position information for vehicle-based mobile devices. While a Global Positioning System (GPS) Receiver is the most common implementation, this physical object represents any technology that provides a position fix in three dimensions and time with sufficient accuracy.	Transportation
Terminator	Wayside Equipment	System	Field	Wayside Equipment' represents train interface equipment (usually) maintained and operated by the railroad and (usually) physically located at or near a grade crossing. It is a source and destination for information for, or about, approaching trains and their crews (e.g. the time at which the train will arrive and the time it will take to clear a crossing, crossing status or warnings, etc.). Generally one wayside equipment interface would be associated with one highway rail intersection. However, multiple crossings may be controlled using information based on data from one wayside equipment interface.	Transportation
Terminator	Weather Service System	System	Center	The 'Weather Service System' provides weather, hydrologic, and climate information and warnings of hazardous weather including thunderstorms, flooding, hurricanes, tornadoes, winter weather, tsunamis, and climate events. It provides atmospheric weather observations and forecasts that are collected and derived by the National Weather Service, private sector providers, and various research organizations. The interface provides formatted weather data products suitable for on-line processing and integration with other ITS data products as well as Doppler radar images, satellite images, severe storm warnings, and other products that are formatted for presentation to various ITS users.	Transportation