

APPENDIX

C CAN_V2 VS. US_V6 TEXT COMPARISONS

APPENDIX

C-1 *SERVICE PACKAGE TEXT COMPARISON*

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
AD1	ITS Data Mart	This market package provides a focused archive that houses data collected and owned by a single agency, district, private sector provider, research institution, or other organization. This focused archive typically includes data covering a single transportation mode and one jurisdiction that is collected from an operational data store and archived for future use. It provides the basic data quality, data privacy, and meta data management common to all ITS archives and provides general query and report access to archive data users.	AD1	ITS Data Mart	This market service package provides a focused archive that houses data collected and owned by a single agency, district, private sector provider, research institution, or other organization. This focused archive typically includes data covering a single transportation mode and one jurisdiction that is collected from an operational data store and archived for future use. It provides the basic data quality, data privacy, and meta data management common to all ITS archives and provides general query and report access to archive data users.
AD2	ITS Data Warehouse	This market package includes all the data collection and management capabilities provided by the ITS Data Mart, and adds the functionality and interface definitions that allow collection of data from multiple agencies and data sources spanning across modal and jurisdictional boundaries. It performs the additional transformations and provides the additional meta data management features that are necessary so that all this data can be managed in a single repository with consistent formats. The potential for large volumes of varied data suggests additional on-line analysis and data mining features that are also included in this market package in addition to the basic query and reporting user access features offered by the ITS Data Mart.	AD2	ITS Data Warehouse	This market service package includes all the data collection and management capabilities provided by the ITS Data Mart, and adds the functionality and interface definitions that allow collection of data from multiple agencies and data sources spanning across modal and jurisdictional boundaries. It performs the additional transformations and provides the additional meta data management features that are necessary so that all this data can be managed in a single repository with consistent formats. The potential for large volumes of varied data suggests additional on-line analysis and data mining features that are also included in this market service package in addition to the basic query and reporting user access features offered by the ITS Data Mart.
AD3	ITS Virtual Data Warehouse	This market package provides the same broad access to multimodal, multidimensional data from varied data sources as in the ITS Data Warehouse Market Package, but provides this access using enhanced interoperability between physically distributed ITS archives that are each locally managed. Requests for data that are satisfied by access to a single repository in the ITS Data Warehouse Market Package are parsed by the local archive and dynamically translated to requests to remote archives which relay the data necessary to satisfy the request.	AD3	ITS Virtual Data Warehouse	This market service package provides the same broad access to multimodal, multidimensional data from varied data sources as in the ITS Data Warehouse Market Packageservice package, but provides this access using enhanced interoperability between physically distributed ITS archives that are each locally managed. Requests for data that are satisfied by access to a single repository in the ITS Data Warehouse Market Packageservice package are parsed by the local archive and dynamically translated to requests to remote archives which relay the data necessary to satisfy the request.
APTS01	Transit Vehicle Tracking	This market package monitors current transit vehicle location using an Automated Vehicle Location System. The location data may be used to determine real time schedule adherence and update the transit system’s schedule in real-time. Vehicle position may be determined either by the vehicle (e.g., through GPS) and relayed to the infrastructure or may be determined directly by the communications infrastructure. A two-way wireless communication link with the Transit Management Subsystem is used for relaying vehicle position and control measures. Fixed route transit systems may also employ beacons along the route to enable position determination and facilitate communications with each vehicle at fixed intervals. The Transit Management Subsystem processes this information, updates the transit schedule and makes real-time schedule information available to the Information Service Provider.	APTS01	Transit Vehicle Tracking	This market service package monitors current transit vehicle location using an Automated Vehicle Location System. The location data may be used to determine real time schedule adherence and update the transit system’s schedule in real-time. Vehicle position may be determined either by the vehicle (e.g., through GPS) and relayed to the infrastructure or may be determined directly by the communications infrastructure. A two-way wireless communication link with the Transit Management Subsystem is used for relaying vehicle position and control measures. Fixed route transit systems may also employ beacons along the route to enable position determination and facilitate communications with each vehicle at fixed intervals. The Transit Management Subsystem processes this information, updates the transit schedule and makes real-time schedule information available to the Information Service Provider.
APTS02	Transit Fixed-Route Operations	This market package performs automated dispatch and system monitoring for fixed-route and flexible-route transit services. This service performs scheduling activities including the creation of schedules, blocks and runs, as well as operator assignment. This service determines the transit vehicle trip performance against the schedule using AVL data and provides information displays at the Transit Management Subsystem. Static and real time transit data is exchanged with Information Service Providers where it is integrated with that from other transportation modes (e.g. rail, ferry, air) to provide the public with integrated and personalized dynamic schedules.	APTS02	Transit Fixed-Route Operations	This market service package performs automated dispatch and system monitoring for fixed-route and flexible-route transit services. This service performs scheduling activities including the creation of schedules, blocks and runs, as well as operator assignment. This service determines the transit vehicle trip performance against the schedule using AVL data and provides information displays at the Transit Management Subsystem. Static and real time transit data is exchanged with Information Service Providers where it is integrated with that from other transportation modes (e.g. rail, ferry, air) to provide the public with integrated and personalized dynamic schedules.
APTS03	Demand Response Transit Operations	This market package performs automated dispatch and system monitoring for demand responsive transit services. This service performs scheduling activities as well as operator assignment. In addition, this market package performs similar functions to support dynamic features of flexible-route transit services. This package monitors the current status of the transit fleet and supports allocation of these fleet resources to service incoming requests for transit service while also considering traffic conditions. The Transit Management Subsystem provides the necessary data processing and information display to assist the transit operator in making optimal use of the transit fleet. This service includes the capability for a traveler request for personalized transit services to be made through the Information Service Provider (ISP) Subsystem. The ISP may either be operated by a transit management center or be independently owned and operated by a separate service provider. In the first scenario, the traveler makes a direct request to a specific paratransit service. In the second scenario, a third party service provider determines that the paratransit service is a viable means of satisfying a traveler request and makes a reservation for the traveler.	APTS03	Demand Response Transit Operations	This market service package performs automated dispatch and system monitoring for demand responsive transit services. This service performs scheduling activities as well as operator assignment. In addition, this market service package performs similar functions to support dynamic features of flexible-route transit services. This package monitors the current status of the transit fleet and supports allocation of these fleet resources to service incoming requests for transit service while also considering traffic conditions. The Transit Management Subsystem provides the necessary data processing and information display to assist the transit operator in making optimal use of the transit fleet. This service includes the capability for a traveler traveller request for personalized transit services to be made through the Information Service Provider (ISP) Subsystem. The ISP may either be operated by a transit management center centre or be independently owned and operated by a separate service provider. In the first scenario, the traveler traveller makes a direct request to a specific paratransit service. In the second scenario, a third party service provider determines that the paratransit service is a viable means of satisfying a traveler traveller request and makes a reservation for the traveler traveller.

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
APTS04	Transit Fare Collection Management	This market package manages transit fare collection on-board transit vehicles and at transit stops using electronic means. It allows transit users to use a traveler card or other electronic payment device. Readers located either in the infrastructure or on-board the transit vehicle allow electronic fare payment. Data is processed, stored, and displayed on the transit vehicle and communicated as needed to the Transit Management Subsystem. Two other market packages, ATMS10: Electronic Toll Collection and ATMS16: Parking Facility Management also provide electronic payment services. These three market packages in combination provide an integrated electronic payment system for transportation services.	APTS04	Transit Fare Collection Management	This marketservice package manages transit fare collection on-board transit vehicles and at transit stops using electronic means. It allows transit users to use a traveler traveller card or other electronic payment device. Readers located either in the infrastructure or on-board the transit vehicle allow electronic fare payment. Data is processed, stored, and displayed on the transit vehicle and communicated as needed to the Transit Management Subsystem. Two other marketservice packages, ATMS10: Electronic Toll Collection and ATMS16: Parking Facility Management also provide electronic payment services. These three marketservice packages in combination provide an integrated electronic payment system for transportation services.
APTS05	Transit Security	<p>This market package provides for the physical security of transit passengers and transit vehicle operators. On-board equipment is deployed to perform surveillance and sensor monitoring in order to warn of potentially hazardous situations. The surveillance equipment includes video (e.g., CCTV cameras), audio systems and/or event recorder systems. The sensor equipment includes threat sensors (e.g., chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors) and object detection sensors (e.g., metal detectors). Transit user or transit vehicle operator activated alarms are provided on-board. Public areas (e.g., transit stops, park and ride lots, stations) are also monitored with similar surveillance and sensor equipment and provided with transit user activated alarms. In addition this market package provides surveillance and sensor monitoring of non-public areas of transit facilities (e.g., transit yards) and transit infrastructure such as bridges, tunnels, and transit railways or bus rapid transit (BRT) guideways. The surveillance equipment includes video and/or audio systems. The sensor equipment includes threat sensors and object detection sensors as described above as well as, intrusion or motion detection sensors and infrastructure integrity monitoring (e.g., rail track continuity checking or bridge structural integrity monitoring).</p> <p>The surveillance and sensor information is transmitted to the Emergency Management Subsystem, as are transit user activated alarms in public secure areas. On-board alarms, activated by transit users or transit vehicle operators are transmitted to both the Emergency Management Subsystem and the Transit Management Subsystem, indicating two possible approaches to implementing this market package.</p> <p>In addition the market package supports remote transit vehicle disabling by the Transit Management Subsystem and transit vehicle operator authentication.</p>	APTS05	Transit Security	<p>This marketservice package provides for the physical security of transit passengers and transit vehicle operators. On-board equipment is deployed to perform surveillance and sensor monitoring in order to warn of potentially hazardous situations. The surveillance equipment includes video (e.g., CCTV cameras), audio systems and/or event recorder systems. The sensor equipment includes threat sensors (e.g., chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors) and object detection sensors (e.g., metal detectors). Transit user or transit vehicle operator activated alarms are provided on-board. Public areas (e.g., transit stops, park and ride lots, stations), non-public areas (e.g. transit yards) and infrastructure (e.g. transit railways or guideways) are also monitored with similar surveillance and sensor equipment and provided with transit user activated alarms. In addition this market package provides surveillance and sensor monitoring of non-public areas of transit facilities (e.g., transit yards) and transit infrastructure such as bridges, tunnels, and transit railways or bus rapid transit (BRT) guideways. The surveillance equipment includes video and/or audio systems. The sensor equipment includes threat sensors and object detection sensors as described above as well as, intrusion or motion detection sensors and infrastructure integrity monitoring (e.g., rail track continuity checking or bridge structural integrity monitoring).</p> <p>The surveillance and sensor information is transmitted to the Emergency Management Subsystem and Transit Management Subsystem, as are transit user activated alarms in public secure areas. On-board alarms, activated by transit users or transit vehicle operators are transmitted to both. In addition the Emergency Management Subsystem and the Transit Management Subsystem, indicating two possible approaches to implementing this market package.</p> <p>In addition the marketservice package supports remote transit vehicle disabling by the Transit Management Subsystem and transit vehicle operator authentication.</p>
APTS06	Transit Fleet Management	This market package supports automatic transit maintenance scheduling and monitoring. On-board condition sensors monitor system status and transmit critical status information to the Transit Management Subsystem. Hardware and software in the Transit Management Subsystem processes this data and schedules preventative and corrective maintenance. The market package also supports the day to day management of the transit fleet inventory, including the assignment of specific transit vehicles to blocks.	APTS06	Transit Fleet Management	This marketservice package supports automatic transit maintenance scheduling and monitoring. On-board condition sensors monitor system status and transmit critical status information to the Transit Management Subsystem. Hardware and software in the Transit Management Subsystem processes this data and schedules preventative and corrective maintenance. The marketservice package also supports the day to day management of the transit fleet inventory, including the assignment of specific transit vehicles to blocks.
APTS07	Multi-modal Coordination	This market package establishes two way communications between multiple transit and traffic agencies to improve service coordination. Multimodal coordination between transit agencies can increase traveler convenience at transit transfer points and clusters (a collection of stops, stations, or terminals where transfers can be made conveniently) and also improve operating efficiency. Transit transfer information is shared between Multimodal Transportation Service Providers and Transit Agencies.	APTS07	Multi-modal Coordination	This marketservice package establishes two way communications between multiple transit and traffic agencies to improve service coordination. Multimodal coordination between transit agencies can increase traveler traveller convenience at transit transfer points and clusters (a collection of stops, stations, or terminals where transfers can be made conveniently) and also improve operating efficiency. Transit transfer information is shared between Multimodal Transportation Service Providers and Transit Agencies. Co-ordination between traffic and transit management is intended to improve on-time performance of the transit system to the extent that this can be accommodated without degrading overall performance of the traffic network. More limited local co-ordination between the transit vehicle and the individual intersection for signal priority is also supported by this package.

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
APTS08	Transit Traveler Information	This market package provides transit users at transit stops and on-board transit vehicles with ready access to transit information. The information services include transit stop announcement, imminent arrival signs, and real-time transit schedule displays that are of general interest to transit users. Systems that provide custom transit trip itineraries and other tailored transit information services are also represented by this market package.	APTS08	Transit Traveler Traveller Information	This market service package provides transit users at transit stops and on-board transit vehicles with ready access to transit information. The information services include transit stop announcement, imminent arrival signs, and real-time transit schedule displays that are of general interest to transit users. Systems that provide custom transit trip itineraries and other tailored transit information services are also represented by this market service package.
APTS09	Transit Signal Priority	This market package determines the need for transit priority on routes and at certain intersections and requests transit vehicle priority at these locations. The signal priority may result from limited local coordination between the transit vehicle and the individual intersection for signal priority or may result from coordination between transit management and traffic management centers. Coordination between traffic and transit management is intended to improve on-time performance of the transit system to the extent that this can be accommodated without degrading overall performance of the traffic network.	APTS09	Transit Signal Priority	This market service package determines the need for transit priority on routes and at certain intersections and requests transit vehicle priority at these locations. The signal priority may result from limited local coordination between the transit vehicle and the individual intersection for signal priority or may result from coordination between transit management and traffic management centers centres. Coordination between traffic and transit management is intended to improve on-time performance of the transit system to the extent that this can be accommodated without degrading overall performance of the traffic network.
APTS10	Transit Passenger Counting	This market package counts the number of passengers entering and exiting a transit vehicle using sensors mounted on the vehicle and communicates the collected passenger data back to the management center. The collected data can be used to calculate reliable ridership figures and measure passenger load information at particular stops.	APTS10	Transit Passenger Counting	This market service package counts the number of passengers entering and exiting a transit vehicle using sensors mounted on the vehicle and communicates the collected passenger data back to the management center centre. The collected data can be used to calculate reliable ridership figures and measure passenger load information at particular stops.
ATIS01	Broadcast Traveler Information	This market package collects traffic conditions, advisories, general public transportation, toll and parking information, incident information, roadway maintenance and construction information, air quality and weather information, and broadcasts the information to travelers using technologies such as FM subcarrier, satellite radio, cellular data broadcasts, and Internet web casts. The information may be provided directly to travelers or provided to merchants and other traveler service providers so that they can better inform their customers of travel conditions. Different from the market package ATMS6 - Traffic Information Dissemination, which provides localized HAR and DMS information capabilities, ATIS1 provides a wide area digital broadcast service. Successful deployment of this market package relies on availability of real-time traveler information from roadway instrumentation, probe vehicles or other sources.	ATIS01	Broadcast Traveler Traveller Information	This market service package collects traffic conditions, advisories, general public transportation, toll and parking information, incident information, roadway maintenance and construction information, air quality and weather information, and broadcasts the information to traveler travellers using technologies such as FM subcarrier, satellite radio, cellular data broadcasts, and Internet web casts. The information may be provided directly to traveler travellers or provided to merchants and other traveler traveller service providers so that they can better inform their customers of travel conditions. Different from the market service package ATMS6 - Traffic Information Dissemination, which provides localized HAR and DMS information capabilities, ATIS1 provides a wide area digital broadcast service. Successful deployment of this market service package relies on availability of real-time traveler traveller information from roadway instrumentation, probe vehicles or other sources.
ATIS02	Interactive Traveler Information	This market package provides tailored information in response to a traveler request. Both real-time interactive request/response systems and information systems that "push" a tailored stream of information to the traveler based on a submitted profile are supported. The traveler can obtain current information regarding traffic conditions, roadway maintenance and construction, transit services, ride share/ride match, parking management, detours and pricing information. Although the Internet is the predominate network used for traveler information dissemination, a range of two-way wide-area wireless and fixed-point to fixed-point communications systems may be used to support the required data communications between the traveler and Information Service Provider. A variety of interactive devices may be used by the traveler to access information prior to a trip or en route including phone via a 511-like portal and web pages via kiosk, personal digital assistant, personal computer, and a variety of in-vehicle devices. This market package also allows value-added resellers to collect transportation information that can be aggregated and be available to their personal devices or remote traveler systems to better inform their customers of transportation conditions. Successful deployment of this market package relies on availability of real-time transportation data from roadway instrumentation, transit, probe vehicles or other means. A traveler may also input personal preferences and identification information via a "traveler card" that can convey information to the system about the traveler as well as receive updates from the system so the card can be updated over time.	ATIS02	Interactive Traveler Traveller Information	This market service package provides tailored information in response to a traveler traveller request. Both real-time interactive request/response systems and information systems that "push" a tailored stream of information to the traveler traveller based on a submitted profile are supported. The traveler traveller can obtain current information regarding traffic conditions, roadway maintenance and construction, transit services, ride share/ride match, parking management, detours and pricing information. Although the Internet is the predominate network used for traveler traveller information dissemination, a range of two-way wide-area wireless and fixed-point to fixed-point communications systems may be used to support the required data communications between the traveler traveller and Information Service Provider. A variety of interactive devices may be used by the traveler traveller to access information prior to a trip or en route including phone via a 511-like portal and web pages via kiosk, personal digital assistant, personal computer, and a variety of in-vehicle devices. This market service package also allows value-added resellers to collect transportation information that can be aggregated and be available to their personal devices or remote traveler traveller systems to better inform their customers of transportation conditions. Successful deployment of this market service package relies on availability of real-time transportation data from roadway instrumentation, transit, probe vehicles or other means. A traveler traveller may also input personal preferences and identification information via a " traveler traveller card" that can convey information to the system about the traveler traveller as well as receive updates from the system so the card can be updated over time.
ATIS03	Autonomous Route Guidance	This market package relies on in-vehicle sensory, location determination, computational, map database, and interactive driver interface equipment to enable route planning and detailed route guidance based on static, stored information. No communication with the infrastructure is assumed or required. Identical capabilities are available to the traveler outside the vehicle by integrating a similar suite of equipment into portable devices.	ATIS03	Autonomous Route Guidance	This market service package relies on in-vehicle sensory, location determination, computational, map database, and interactive driver interface equipment to enable route planning and detailed route guidance based on static, stored information. No communication with the infrastructure is assumed or required. Identical capabilities are available to the traveler traveller outside the vehicle by integrating a similar suite of equipment into portable devices.

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
ATIS04	Dynamic Route Guidance	This market package offers advanced route planning and guidance that is responsive to current conditions. The package combines the autonomous route guidance user equipment with a digital receiver capable of receiving real-time traffic, transit, and road condition information, which is considered by the user equipment in provision of route guidance.	ATIS04	Dynamic Route Guidance	This marketservice package offers advanced route planning and guidance that is responsive to current conditions. The package combines the autonomous route guidance user equipment with a digital receiver capable of receiving real-time traffic, transit, and road condition information, which is considered by the user equipment in provision of route guidance.
ATIS05	ISP Based Trip Planning and Route Guidance	This market package offers the user trip planning and en-route guidance services. It generates a trip plan, including a multimodal route and associated service information (e.g., parking information), based on traveler preferences and constraints. Routes may be based on static information or reflect real time network conditions. Unlike ATIS3 and ATIS4, where the user equipment determines the route, the route determination functions are performed in the Information Service Provider Subsystem in this market package. The trip plan may be confirmed by the traveler and advanced payment and reservations for transit and alternate mode (e.g., airline, rail, and ferry) trip segments, and ancillary services (e.g., parking reservations) are accepted and processed. The confirmed trip plan may include specific routing information that can be supplied to the traveler as general directions or as turn-by-turn route guidance depending on the level of user equipment.	ATIS05	ISP Based Trip Planning and Route Guidance	This marketservice package offers the user trip planning and en-route guidance services. It generates a trip plan, including a multimodal route and associated service information (e.g., parking information), based on traveler traveller preferences and constraints. Routes may be based on static information or reflect real time network conditions. Unlike ATIS3 and ATIS4, where the user equipment determines the route, the route determination functions are performed in the Information Service Provider Subsystem in this marketservice package. The trip plan may be confirmed by the traveler traveller and advanced payment and reservations for transit and alternate mode (e.g., airline, rail, and ferry) trip segments, and ancillary services (e.g., parking reservations) are accepted and processed. The confirmed trip plan may include specific routing information that can be supplied to the traveler traveller as general directions or as turn-by-turn route guidance depending on the level of user equipment.
ATIS06	Transportation Operations Data Sharing	This market package makes real-time transportation operations data available to transportation system operators. The Information Service Provider collects, processes, and stores current information on traffic and travel conditions and other information about the current state of the transportation network and makes this information available to transportation system operators, facilitating the exchange of qualified, real-time information between agencies. Using the provided information, transportation system operators can manage their individual systems based on an overall view of the regional transportation system. The regional transportation operations data resource represented by the Information Service Provider may be implemented as a web application that provides a web-based access to system operators, an enterprise database that provides a network interface to remote center applications, or any implementation that supports regional sharing of real-time transportation operations data.	ATIS06	Transportation Operations Data Sharing	This marketservice package makes real-time transportation operations data available to transportation system operators. The Information Service Provider collects, processes, and stores current information on traffic and travel conditions and other information about the current state of the transportation network and makes this information available to transportation system operators, facilitating the exchange of qualified, real-time information between agencies. Using the provided information, transportation system operators can manage their individual systems based on an overall view of the regional transportation system. The regional transportation operations data resource represented by the Information Service Provider may be implemented as a web application that provides a web-based access to system operators, an enterprise database that provides a network interface to remote center centre applications, or any implementation that supports regional sharing of real-time transportation operations data.
ATIS07	Yellow Pages and Reservation	This market package provides yellow pages and reservation services to the user. These additional traveler services may be provided using the same basic user equipment used for Interactive Traveler Information. This market package provides multiple ways for accessing information either while en route in a vehicle using wide-area wireless communications or pre-trip via fixed-point to fixed-point connections.	ATIS07	Yellow Pages Traveller Services Payment and Reservation	This marketservice package provides yellow pages business directory and reservation services to the user. These additional traveler traveller services may be provided using the same basic user equipment used for Interactive Traveler Traveller Information. This marketservice package provides multiple ways for accessing information either while en route in a vehicle using wide-area wireless communications or pre-trip via fixed-point to fixed-point connections.
ATIS08	Dynamic Ridesharing	This market package provides dynamic ridesharing/ride matching services to travelers. This service could allow near real time ridesharing reservations to be made through the same basic user equipment used for Interactive Traveler Information. This ridesharing/ride matching capability also includes arranging connections to transit or other multimodal services.	ATIS08	Dynamic Ridesharing	This marketservice package provides dynamic ridesharing/ride matching services to travelers travellers . This service could allow near real time ridesharing reservations to be made through the same basic user equipment used for Interactive Traveler Traveller Information. This ridesharing/ride matching capability also includes arranging connections to transit or other multimodal services.
ATIS09	In Vehicle Signing	This market package augments regulatory, warning, and informational signs and signals by providing information directly to drivers through in-vehicle devices. 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., current signal states including highway intersection and highway-rail intersection status and local conditions warnings identified by local environmental sensors). It includes short range communications between field equipment and the vehicle and connections to the Traffic Management Subsystem for monitoring and control. This market package also includes the capability for maintenance and construction, transit, and emergency vehicles to transmit sign information to vehicles in the vicinity so that in vehicle signing can be used without fixed infrastructure in work zones, around incidents, and in areas where transit operations impacts traffic.	ATIS09	In Vehicle Signing	This marketservice package augments regulatory, warning, and informational signs and signals by providing information directly to drivers through in-vehicle devices. 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., current signal states including highway intersection and highway-rail intersection status and local conditions warnings identified by local environmental sensors). It includes short range communications between field equipment and the vehicle and connections to the Traffic Management Subsystem for monitoring and control. This marketservice package also includes the capability for maintenance and construction, transit, and emergency vehicles to transmit sign information to vehicles in the vicinity so that in vehicle signing can be used without fixed infrastructure in work zones, around incidents, and in areas where transit operations impacts traffic.

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US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
ATIS10	VII Traveler Information	This market package provides location-specific information to travelers in vehicles using Vehicle Infrastructure Integration (VII). Dedicated short range communications is used to deliver real-time traveler information including travel times, incident information, road conditions, and emergency traveler information to vehicles as they pass VII roadside equipment along their route. This market package provides public information that is available to all equipped vehicles in the vicinity of the roadside equipment.	ATIS10	VII Traveler Traveller Information	This market service package provides location-specific information to traveler travellers in vehicles using Vehicle Infrastructure Integration (VII). Dedicated short range communications is used to deliver real-time traveler traveller information including travel times, incident information, road conditions, and emergency traveler traveller information to vehicles as they pass VII roadside equipment along their route. This market service package provides public information that is available to all equipped vehicles in the vicinity of the roadside equipment.
ATMS01	Network Surveillance	This market package includes traffic detectors, other surveillance equipment, the supporting field equipment, and fixed-point to fixed-point communications to transmit the collected data back to the Traffic Management Subsystem. The derived data can be used locally such as when traffic detectors are connected directly to a signal control system or remotely (e.g., when a CCTV system sends data back to the Traffic Management Subsystem). The data generated by this market package enables traffic managers to monitor traffic and road conditions, identify and verify incidents, detect faults in indicator operations, and collect census data for traffic strategy development and long range planning. The collected data can also be analyzed and made available to users and the Information Service Provider Subsystem.	ATMS01	Network Surveillance	This market service package includes traffic detectors, other surveillance equipment, the supporting field equipment, and fixed-point to fixed-point communications to transmit the collected data back to the Traffic Management Subsystem. The derived data can be used locally such as when traffic detectors are connected directly to a signal control system or remotely (e.g., when a CCTV system sends data back to the Traffic Management Subsystem). The data generated by this market service package enables traffic managers to monitor traffic and road conditions, identify and verify incidents, detect faults in indicator operations, and collect census data for traffic strategy development and long range planning. The collected data can also be analyzed and made available to users and the Information Service Provider Subsystem.
ATMS02	Traffic Probe Surveillance	This market package provides an alternative approach for surveillance of the roadway network. Two general implementation paths are supported by this market package: 1) wide-area wireless communications between the vehicle and center is used to communicate vehicle operational information and status directly to the center, and 2) dedicated short range communications between passing vehicles and the roadside is used to provide equivalent information to the center. The first approach leverages wide area communications equipment that may already be in the vehicle to support personal safety and advanced traveler information services. The second approach utilizes vehicle equipment that supports toll collection, in-vehicle signing, and other short range communications applications identified within the architecture. The market package enables transportation operators and traveler information providers to monitor road conditions, identify incidents, analyze and reduce the collected data, and make it available to users and private information providers. It requires one of the communications options identified above, on-board equipment, data reduction software, and fixed-point to fixed-point links between centers to share the collected information. Both “Opt out” and “Opt in” strategies are available to ensure the user has the ability to turn off the probe functions to ensure individual privacy. Due to the large volume of data collected by probes, data reduction techniques are required, such as the ability to identify and filter out-of-bounds or extreme data reports.	ATMS02	Traffic Probe Surveillance	This market service package provides an alternative approach for surveillance of the roadway network. Two general implementation paths are supported by this market service package: 1) wide-area wireless communications between the vehicle and center centre is used to communicate vehicle operational information and status directly to the center centre, and 2) dedicated short range communications between passing vehicles and the roadside is used to provide equivalent information to the center centre. The first approach leverages wide area communications equipment that may already be in the vehicle to support personal safety and advanced traveler traveller information services. The second approach utilizes vehicle equipment that supports toll collection, in-vehicle signing, and other short range communications applications identified within the architecture. The market service package enables transportation operators and traveler traveller information providers to monitor road conditions, identify incidents, analyze and reduce the collected data, and make it available to users and private information providers. It requires one of the communications options identified above, on-board equipment, data reduction software, and fixed-point to fixed-point links between center centres to share the collected information. Both “Opt out” and “Opt in” strategies are available to ensure the user has the ability to turn off the probe functions to ensure individual privacy. Due to the large volume of data collected by probes, data reduction techniques are required, such as the ability to identify and filter out-of-bounds or extreme data reports.
ATMS03	Surface Street Control	This market package provides the central control and monitoring equipment, communication links, and the signal control equipment that support local surface street control and/or arterial traffic management. A range of traffic signal control systems are represented by this market package ranging from fixed-schedule control systems to fully traffic responsive systems that dynamically adjust control plans and strategies based on current traffic conditions and priority requests. This market package is generally an intra-jurisdictional package that does not rely on real-time communications between separate control systems to achieve area-wide traffic signal coordination. Systems that achieve coordination across jurisdictions by using a common time base or other strategies that do not require real time coordination would be represented by this package. This market package is consistent with typical urban traffic signal control systems.	ATMS03	Surface Street Control	This market service package provides the central control and monitoring equipment, communication links, and the signal control equipment that support local surface street control and/or arterial traffic management. A range of traffic signal control systems are represented by this market service package ranging from fixed-schedule control systems to fully traffic responsive systems that dynamically adjust control plans and strategies based on current traffic conditions and priority requests. This market service package is generally an intra-jurisdictional package that does not rely on real-time communications between separate control systems to achieve area-wide traffic signal coordination. Systems that achieve coordination across jurisdictions by using a common time base or other strategies that do not require real time coordination would be represented by this package. This market service package is consistent with typical urban traffic signal control systems.

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
ATMS04	Freeway Control	<p>This market package provides central monitoring and control, communications, and field equipment that support freeway management. It supports a range of freeway management control strategies including ramp metering, interchange metering, mainline lane controls, mainline metering, and other strategies including variable speed controls. This package incorporates the instrumentation included in the Network Surveillance Market Package to support freeway monitoring and adaptive strategies as an option.</p> <p>This market package also includes the capability to utilize surveillance information for detection of incidents. Typically, the processing would be performed at a traffic management center; however, developments might allow for point detection with roadway equipment. For example, a CCTV might include the capability to detect an incident based upon image changes. Additionally, this market package allows general advisory and traffic control information to be provided to the driver while en route.</p>	ATMS04	Freeway Control	<p>This market service package provides central monitoring and control, communications, and field equipment that support freeway management. It supports a range of freeway management control strategies including ramp metering, interchange metering, mainline lane controls, mainline metering, and other strategies including variable speed controls. This package incorporates the instrumentation included in the Network Surveillance Market Packages service package to support freeway monitoring and adaptive strategies as an option.</p> <p>This market service package also includes the capability to utilize surveillance information for detection of incidents. Typically, the processing would be performed at a traffic management center; however, developments might allow for point detection with roadway equipment. For example, a CCTV might include the capability to detect an incident based upon image changes. Additionally, this market service package allows general advisory and traffic control information to be provided to the driver while en route.</p>
ATMS05	HOV Lane Management	<p>This market package manages HOV lanes by coordinating freeway ramp meters and connector signals with HOV lane usage signals. Preferential treatment is given to HOV lanes using special bypasses, reserved lanes, and exclusive rights-of-way that may vary by time of day. Vehicle occupancy detectors may be installed to verify HOV compliance and to notify enforcement agencies of violations.</p>	ATMS05	HOV Lane Management	<p>This market service package manages HOV lanes by coordinating freeway ramp meters and connector signals with HOV lane usage signals. Preferential treatment is given to HOV lanes using special bypasses, reserved lanes, and exclusive rights-of-way that may vary by time of day. Vehicle occupancy detectors may be installed to verify HOV compliance and to notify enforcement agencies of violations.</p>
ATMS06	Traffic Information Dissemination	<p>This market package provides driver information using roadway equipment such as dynamic message signs or highway advisory radio. A wide range of information can be disseminated including traffic and road conditions, closure and detour information, incident information, and emergency alerts and driver advisories. This package provides information to drivers at specific equipped locations on the road network. Careful placement of the roadway equipment provides the information at points in the network where the drivers have recourse and can tailor their routes to account for the new information. This package also covers the equipment and interfaces that provide traffic information from a traffic management center to the media (for instance via a direct tie-in between a traffic management center and radio or television station computer systems), Transit Management, Emergency Management, and Information Service Providers. A link to the Maintenance and Construction Management subsystem allows real time information on road/bridge closures due to maintenance and construction activities to be disseminated.</p>	ATMS06	Traffic Information Dissemination	<p>This market service package provides driver information using roadway equipment such as dynamic message signs or highway advisory radio. A wide range of information can be disseminated including traffic and road conditions, closure and detour information, incident information, and emergency alerts and driver advisories. This package provides information to drivers at specific equipped locations on the road network. Careful placement of the roadway equipment provides the information at points in the network where the drivers have recourse and can tailor their routes to account for the new information. This package also covers the equipment and interfaces that provide traffic information from a traffic management center to the media (for instance via a direct tie-in between a traffic management center and radio or television station computer systems), Transit Management, Emergency Management, and Information Service Providers. A link to the Maintenance and Construction Management subsystem allows real time information on road/bridge closures due to maintenance and construction activities to be disseminated.</p>
ATMS07	Regional Traffic Management	<p>This market package provides for the sharing of traffic information and control among traffic management centers to support regional traffic management strategies. Regional traffic management strategies that are supported include coordinated signal control in a metropolitan area and coordination between freeway operations and arterial signal control within a corridor. This market package advances the Surface Street Control and Freeway Control Market Packages by adding the communications links and integrated control strategies that enable integrated interjurisdictional traffic management. The nature of optimization and extent of information and control sharing is determined through working arrangements between jurisdictions. This package relies principally on roadside instrumentation supported by the Surface Street Control and Freeway Control Market Packages and adds hardware, software, and fixed-point to fixed-point communications capabilities to implement traffic management strategies that are coordinated between allied traffic management centers. Several levels of coordination are supported from sharing of information through sharing of control between traffic management centers.</p>	ATMS07	Regional Traffic Management	<p>This market service package provides for the sharing of traffic information and control among traffic management centers to support regional traffic management strategies. Regional traffic management strategies that are supported include coordinated signal control in a metropolitan area and coordination between freeway operations and arterial signal control within a corridor. This market service package advances the Surface Street Control and Freeway Control Market Packages service packages by adding the communications links and integrated control strategies that enable integrated interjurisdictional traffic management. The nature of optimization and extent of information and control sharing is determined through working arrangements between jurisdictions. This package relies principally on roadside instrumentation supported by the Surface Street Control and Freeway Control Market Packages service packages and adds hardware, software, and fixed-point to fixed-point communications capabilities to implement traffic management strategies that are coordinated between allied traffic management centers. Several levels of coordination are supported from sharing of information through sharing of control between traffic management centers.</p>

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
ATMS08	Traffic Incident Management System	This market package manages both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. The market package includes incident detection capabilities through roadside surveillance devices (e.g. CCTV) and through regional coordination with other traffic management, maintenance and construction management and emergency management centers as well as rail operations and event promoters. Information from these diverse sources is collected and correlated by this market package to detect and verify incidents and implement an appropriate response. This market package supports traffic operations personnel in developing an appropriate response in coordination with emergency management, maintenance and construction management, and other incident response personnel to confirmed incidents. The response may include traffic control strategy modifications or resource coordination between center subsystems. Incident response also includes presentation of information to affected travelers using the Traffic Information Dissemination market package and dissemination of incident information to travelers through the Broadcast Traveler Information or Interactive Traveler Information market packages. The roadside equipment used to detect and verify incidents also allows the operator to monitor incident status as the response unfolds. The coordination with emergency management might be through a CAD system or through other communication with emergency field personnel. The coordination can also extend to tow trucks and other allied response agencies and field service personnel.	ATMS08	Traffic Incident Management System	This marketservice package manages both unexpected incidents and planned events so that the impact to the transportation network and traveler traveler safety is minimized. The marketservice package includes incident detection capabilities through roadside surveillance devices (e.g. CCTV) and through regional coordination with other traffic management, maintenance and construction management and emergency management centers centres as well as rail operations and event promoters. Information from these diverse sources is collected and correlated by this marketservice package to detect and verify incidents and implement an appropriate response. This marketservice package supports traffic operations personnel in developing an appropriate response in coordination with emergency management, maintenance and construction management, and other incident response personnel to confirmed incidents. The response may include traffic control strategy modifications or resource coordination between center centre subsystems. Incident response also includes presentation of information to affected travelers travelers using the Traffic Information Dissemination marketservice package and dissemination of incident information to traveler travelers through the Broadcast Traveler Traveler Information or Interactive Traveler Traveler Information marketservice packages. The roadside equipment used to detect and verify incidents also allows the operator to monitor incident status as the response unfolds. The coordination with emergency management might be through a CAD system or through other communication with emergency field personnel. The coordination can also extend to tow trucks and other allied response agencies and field service personnel.
ATMS09	Traffic Decision Support and Demand Management	This market package recommends courses of action to traffic operations personnel based on an assessment of current and forecast road network performance. Recommendations may include predefined incident response plans and regional surface street and freeway control strategies that correct network imbalances. Where applicable, this market package also recommends transit, parking, and toll strategies to influence traveler route and mode choices to support travel demand management (TDM) programs and policies managing both traffic and the environment. TDM recommendations are coordinated with transit, parking, and toll administration centers to support regional implementation of TDM strategies. Incident response and congestion management recommendations are implemented by the local traffic management center and coordinated with other regional centers by other market packages (see ATMS07-Regional Traffic Management and ATMS08-Traffic Incident Management). All recommendations are based on historical evaluation, real-time assessment, and forecast of the roadway network performance based on predicted travel demand patterns. Traffic data is collected from sensors and surveillance equipment, other traffic management centers. Forecasted traffic loads are derived from historical data and route plans supplied by the Information Service Provider Subsystem. This market package also collects air quality, parking availability, transit usage, and vehicle occupancy data to support TDM, where applicable.	ATMS09	Traffic Decision Support Forecast and Demand Management	This marketservice package recommends courses of action to traffic operations personnel based on an assessment of current and forecast road network performance. Recommendations may include predefined incident response plans and regional surface street and freeway control strategies that correct network imbalances. Where applicable, this marketservice package also recommends transit, parking, and toll strategies to influence traveler center route and mode choices to support travel demand management (TDM) programs and policies managing both traffic and the environment. TDM recommendations are coordinated with transit, parking, and toll administration centers centres to support regional implementation of TDM strategies. Incident response and congestion management recommendations are implemented by the local traffic management center centre and coordinated with other regional centers centres by other marketservice packages (see ATMS07-Regional Traffic Management and ATMS08-Traffic Incident Management). All recommendations are based on historical evaluation, real-time assessment, and forecast of the roadway network performance based on predicted travel demand patterns. Traffic data is collected from sensors and surveillance equipment, other traffic management centers centres . Forecasted traffic loads are derived from historical data and route plans supplied by the Information Service Provider Subsystem. This marketservice package also collects air quality, parking availability, transit usage, and vehicle occupancy data to support TDM, where applicable.
ATMS10	Electronic Toll Collection	This market package provides toll operators with the ability to collect tolls electronically and detect and process violations. The fees that are collected may be adjusted to implement demand management strategies. Field-Vehicle Communication between the roadway equipment and the vehicle is required as well as Fixed Point-Fixed Point interfaces between the toll collection equipment and transportation authorities and the financial infrastructure that supports fee collection. Toll violations are identified and electronically posted to vehicle owners. Standards, inter-agency coordination, and financial clearinghouse capabilities enable regional, and ultimately national interoperability for these services. Two other market packages, APTS04: Transit Fare Collection Management and ATMS16: Parking Facility Management also provide electronic payment services. These three market packages in combination provide an integrated electronic payment system for transportation services. The vehicle equipment and roadside readers that these systems utilize can also be used to collect road use statistics for highway authorities. This data can be collected as a natural by-product of the toll collection process or collected by separate readers that are dedicated to probe data collection.	ATMS10	Electronic Toll Collection	This marketservice package provides toll operators with the ability to collect tolls electronically and detect and process violations. The fees that are collected may be adjusted to implement demand management strategies. Field-Vehicle Communication between the roadway equipment and the vehicle is required as well as Fixed Point-Fixed Point interfaces between the toll collection equipment and transportation authorities and the financial infrastructure that supports fee collection. Toll violations are identified and electronically posted to vehicle owners. Standards, inter-agency coordination, and financial clearinghouse capabilities enable regional, and ultimately national interoperability for these services. Two other market packages, APTS04: Transit Fare Collection Management and ATMS16: Parking Facility Management also provide electronic payment services. These three market packages in combination provide an integrated electronic payment system for transportation services. _The vehicle equipment and roadside readers that these systems utilize can also be used to collect road use statistics for highway authorities. This data can be collected as a natural by-product of the toll collection process or collected by separate readers that are dedicated to probe data collection.

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
ATMS11	Emissions Monitoring and Management	This market package monitors individual vehicle emissions and provides general air quality monitoring using distributed sensors to collect the data. The collected information is transmitted to the emissions management subsystem for processing. Both area wide air quality monitoring and point emissions monitoring are supported by this market package. For area wide monitoring, this market package measures air quality, identifies sectors that are non-compliant with air quality standards, and collects, stores and reports supporting statistical data. For point emissions monitoring, this market package collects data from on-board diagnostic systems and measures tail pipe emissions to identify vehicles that exceed emissions standards and/or clean vehicles that could be released from standard emissions tests, depending on policy and regulations. Summary emissions information or warnings can also be displayed to drivers. The gathered information can be used to implement environmentally sensitive TDM programs, policies, and regulations.	ATMS11	Emissions Monitoring and Management	This marketservice package monitors individual vehicle emissions and provides general air quality monitoring using distributed sensors to collect the data. The collected information is transmitted to the emissions management subsystem for processing. Both area wide air quality monitoring and point emissions monitoring are supported by this marketservice package. For area wide monitoring, this marketservice package measures air quality, identifies sectors that are non-compliant with air quality standards, and collects, stores and reports supporting statistical data. For point emissions monitoring, this marketservice package collects data from on-board diagnostic systems and measures tail pipe emissions to identify and identifies vehicles that exceed emissions standards and/or clean vehicles that could be released from standard emissions tests, depending on policy and regulations . Summary emissions information or warnings can also be displayed to drivers. The gathered information can be used to implement environmentally sensitive TDM programs, policies, and regulations.
ATMS12	Roadside Lighting System Control	This market package includes systems that manage electrical lighting systems by monitoring operational conditions and using the lighting controls to vary the amount of light provided along the roadside. These systems allow a center to control lights based on traffic conditions, time-of-day, and the occurrence of incidents. Such systems can increase the safety of a roadway segment by increasing lighting and conserve energy at times when conditions warrant a reduction in the amount of lighting.	ATMS12	Roadside Lighting System Control	This marketservice package includes systems that manage electrical lighting systems by monitoring operational conditions and using the lighting controls to vary the amount of light provided along the roadside. These systems allow a center center to control lights based on traffic conditions, time-of-day, and the occurrence of incidents. Such systems can increase the safety of a roadway segment by increasing lighting and conserve energy at times when conditions warrant a reduction in the amount of lighting.
ATMS13	Standard Railroad Grade Crossing	This market package manages highway traffic at highway-rail intersections (HRIs) where operational requirements do not dictate more advanced features (e.g., where rail operational speeds are less than 80 miles per hour). Both passive (e.g., the crossbuck sign) and active warning systems (e.g., flashing lights and gates) are supported. (Note that passive systems exercise only the single interface between the roadway subsystem and the driver in the architecture definition.) These traditional HRI warning systems may also be augmented with other standard traffic management devices. The warning systems are activated on notification by interfaced wayside equipment of an approaching train. The equipment at the HRI may also be interconnected with adjacent signalized intersections so that local control can be adapted to highway-rail intersection activities. Health monitoring of the HRI equipment and interfaces is performed; detected abnormalities are reported to both highway and railroad officials through wayside interfaces and interfaces to the traffic management subsystem.	ATMS13	Standard Railroad Grade Crossing	This marketservice package manages highway traffic at highway-rail intersections (HRIs) where operational requirements do not dictate more advanced features (e.g., where rail operational speeds are less than 80 miles per hour). Both passive (e.g., the crossbuck sign) and active warning systems (e.g., flashing lights and gates) are supported. (Note that passive systems exercise only the single interface between the roadway subsystem and the driver in the architecture definition.) These traditional HRI warning systems may also be augmented with other standard traffic management devices. The warning systems are activated on notification by interfaced wayside equipment of an approaching train. The equipment at the HRI may also be interconnected with adjacent signalized intersections so that local control can be adapted to highway-rail intersection activities. Health monitoring of the HRI equipment and interfaces is performed; detected abnormalities are reported to both highway and railroad officials through wayside interfaces and interfaces to the traffic management subsystem.
ATMS14	Advanced Railroad Grade Crossing	This market package manages highway traffic at highway-rail intersections (HRIs) where operational requirements demand advanced features (e.g., where rail operational speeds are greater than 80 miles per hour). This market package includes all capabilities from the Standard Railroad Grade Crossing Market Package and augments these with additional safety features to mitigate the risks associated with higher rail speeds. The active warning systems supported by this market package include positive barrier systems that preclude entrance into the intersection when the barriers are activated. Like the Standard Package, the HRI equipment is activated on notification by wayside interface equipment which detects, or communicates with the approaching train. In this market package, the wayside equipment provides additional information about the arriving train so that the train's direction of travel, estimated time of arrival, and estimated duration of closure may be derived. This enhanced information may be conveyed to the driver prior to, or in context with, warning system activation. This market package also includes additional detection capabilities that enable it to detect an entrapped or otherwise immobilized vehicle within the HRI and provide an immediate notification to highway and railroad officials.	ATMS14	Advanced Railroad Grade Crossing	This marketservice package manages highway traffic at highway-rail intersections (HRIs) where operational requirements demand advanced features (e.g., where rail operational speeds are greater than 80 miles per hour). This marketservice package includes all capabilities from the Standard Railroad Grade Crossing Market Packageservice package and augments these with additional safety features to mitigate the risks associated with higher rail speeds. The active warning systems supported by this marketservice package include positive barrier systems that preclude entrance into the intersection when the barriers are activated. Like the Standard Package, the HRI equipment is activated on notification by wayside interface equipment which detects, or communicates with the approaching train. In this marketservice package, the wayside equipment provides additional information about the arriving train so that the train's direction of travel, estimated time of arrival, and estimated duration of closure may be derived. This enhanced information may be conveyed to the driver prior to, or in context with, warning system activation. This marketservice package also includes additional detection capabilities that enable it to detect an entrapped or otherwise immobilized vehicle within the HRI and provide an immediate notification to highway and railroad officials.
ATMS15	Railroad Operations Coordination	This market package provides an additional level of strategic coordination between freight rail operations and traffic management centers. Rail operations provides train schedules, maintenance schedules, and any other forecast events that will result in highway-rail intersection (HRI) closures. This information is used to develop forecast HRI closure times and durations that may be used in advanced traffic control strategies or to enhance the quality of traveler information.	ATMS15	Railroad Multimodal Operations Coordination	This marketservice package provides an additional level of strategic coordination between freight rail operations and traffic management centers centres . Rail operations provides train schedules, maintenance schedules, and any other forecast events that will result in highway-rail intersection (HRI) closures. This information is used to develop forecast HRI closure times and durations that may be used in advanced traffic control strategies or to enhance the quality of traveler traveller information.

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
ATMS16	Parking Facility Management	This market package provides enhanced monitoring and management of parking facilities. It assists in the management of parking operations, coordinates with transportation authorities, and supports electronic collection of parking fees. This market package collects current parking status, shares this data with Information Service Providers and Traffic Management, and collects parking fees using the same in-vehicle equipment utilized for electronic toll collection or contact or proximity traveler cards used for electronic payment. Two other market packages, APTS04: Transit Fare Collection Management and ATMS10: Electronic Toll Collection also provide electronic payment services. These three market packages in combination provide an integrated electronic payment system for transportation services.	ATMS16	Parking Facility Management	This market service package provides enhanced monitoring and management of parking facilities. It assists in the management of parking operations, coordinates with transportation authorities, and supports electronic collection of parking fees. This market service package collects current parking status, shares this data with Information Service Providers and Traffic Management, and collects parking fees using the same in-vehicle equipment utilized for electronic toll collection or contact or proximity traveler traveller cards used for electronic payment. Two other market service packages, APTS04: Transit Fare Collection Management and ATMS10: Electronic Toll Collection also provide electronic payment services. These three market service packages in combination provide an integrated electronic payment system for transportation services.
ATMS17	Regional Parking Management	This market package supports communication and coordination between equipped parking facilities and also supports regional coordination between parking facilities and traffic and transit management systems. This market package also shares information with transit management systems and information service providers to support multimodal travel planning, including parking reservation capabilities. Information including current parking availability, system status, and operating strategies are shared to enable local parking facility management that supports regional transportation strategies.	ATMS17	Regional Parking Management	This market service package supports communication and coordination between equipped parking facilities and also supports regional coordination between parking facilities and traffic and transit management systems. This market service package also shares information with transit management systems and information service providers to support multimodal travel planning, including parking reservation capabilities. Information including current parking availability, system status, and operating strategies are shared to enable local parking facility management that supports regional transportation strategies.
ATMS18	Reversible Lane Management	This market package provides for the management of reversible lane facilities. In addition to standard surveillance capabilities, this market package includes sensory functions that detect wrong-way vehicles and other special surveillance capabilities that mitigate safety hazards associated with reversible lanes. The package includes the field equipment, physical lane access controls, and associated control electronics that manage and control these special lanes. This market package also includes the equipment used to electronically reconfigure intersections and manage right-of-way to address dynamic demand changes and special events.	ATMS18	Reversible Lane Management	This market service package provides for the management of reversible lane facilities. In addition to standard surveillance capabilities, this market service package includes sensory functions that detect wrong-way vehicles and other special surveillance capabilities that mitigate safety hazards associated with reversible lanes. The package includes the field equipment, physical lane access controls, and associated control electronics that manage and control these special lanes. This market service package also includes the equipment used to electronically reconfigure intersections and manage right-of-way to address dynamic demand changes and special events.
ATMS19	Speed Monitoring	This market package monitors the speeds of vehicles traveling through a roadway system. If the speed is determine to be excessive, roadside equipment can suggest a safe driving speed. Environmental conditions may be monitored and factored into the safe speed advisories that are provided to the motorist. This service can also support notifications to an enforcement agency to enforce the speed limit on a roadway system.	ATMS19	<u>Variable Speed Monitoring Limit and Enforcement</u>	This market service package monitors the speeds of vehicles traveling travelling through a roadway system. If the speed is determine to be excessive, roadside equipment can suggest a safe driving speed. Environmental conditions may be monitored and factored into the safe speed advisories that are provided to the motorist. This service can also support notifications to an enforcement agency to enforce the speed limit (<u>static or variable</u>) on a roadway system.
ATMS20	Drawbridge Management	This market package supports systems that manage drawbridges at rivers and canals and other multimodal crossings (other than railroad grade crossings which are specifically covered by other market packages). The equipment managed by this market package includes control devices (e.g., gates, warning lights, dynamic message signs) at the drawbridge as well as the information systems that are used to keep travelers appraised of current and forecasted drawbridge status.	ATMS20	Drawbridge Management	This market service package supports systems that manage drawbridges at rivers and canals and other multimodal crossings (other than railroad grade crossings which are specifically covered by other market service packages). The equipment managed by this market service package includes control devices (e.g., gates, warning lights, dynamic message signs) at the drawbridge as well as the information systems that are used to keep traveler travellers appraised of current and forecasted drawbridge status.
ATMS21	Roadway Closure Management	This market package closes roadways to vehicular traffic when driving conditions are unsafe, maintenance must be performed, and other scenarios where access to the roadway must be prohibited. The market package includes automatic or remotely controlled gates or barriers that control access to roadway segments including ramps and traffic lanes. Remote control systems allow the gates to be controlled from a central location or from a vehicle at the gate/barrier location, improving system efficiency and reducing personnel exposure to unsafe conditions during severe weather and other situations where roads must be closed. Surveillance systems allow operating personnel to visually verify the safe activation of the closure system and driver information systems (e.g., DMS) provide closure information to motorists in the vicinity of the closure. The equipment managed by this market package includes the control and monitoring systems, the field devices (e.g., gates, warning lights, DMS, CCTV cameras) at the closure location(s), and the information systems that notify other systems of a closure. This market package covers general road closure applications; specific closure systems that are used at railroad grade crossings, drawbridges, reversible lanes, etc. are covered by other ATMS market packages.	ATMS21	Roadway Closure Management	This market service package closes roadways to vehicular traffic when driving conditions are unsafe, maintenance must be performed, and other scenarios where access to the roadway must be prohibited. The market service package includes automatic or remotely controlled gates or barriers that control access to roadway segments including ramps and traffic lanes. Remote control systems allow the gates to be controlled from a central location or from a vehicle at the gate/barrier location, improving system efficiency and reducing personnel exposure to unsafe conditions during severe weather and other situations where roads must be closed. Surveillance systems allow operating personnel to visually verify the safe activation of the closure system and driver information systems (e.g., DMS) provide closure information to motorists in the vicinity of the closure. The equipment managed by this market service package includes the control and monitoring systems, the field devices (e.g., gates, warning lights, DMS, CCTV cameras) at the closure location(s), and the information systems that notify other systems of a closure. This market service package covers general road closure applications; specific closure systems that are used at railroad grade crossings, drawbridges, reversible lanes, etc. are covered by other ATMS market service packages.
AVSS01	Vehicle Safety Monitoring	This market package will diagnose critical components of the vehicle and warn the driver of potential dangers. On-board sensors will determine the vehicle's condition, performance, on-board safety data, and display information.	AVSS01	Vehicle Safety Monitoring	This market service package will diagnose critical components of the vehicle and warn the driver of potential dangers. On-board sensors will determine the vehicle's condition, performance, on-board safety data, and display information.

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
AVSS02	Driver Safety Monitoring	This market package will determine the driver’s condition, and warn the driver of potential dangers. On-board sensors will determine the driver’s condition, performance, on-board safety data, and display information.	AVSS02	Driver Safety Monitoring	This marketservice package will determine the driver’s condition, and warn the driver of potential dangers. On-board sensors will determine the driver’s condition, performance, on-board safety data, and display information.
AVSS03	Longitudinal Safety Warning	This market package allows for longitudinal warning. It utilizes safety sensors and collision sensors. It requires on-board sensors to monitor the areas in front of and behind the vehicle and present warnings to the driver about potential hazards.	AVSS03	Longitudinal Safety Warning	This marketservice package allows for longitudinal warning. It utilizes safety sensors and collision sensors. It requires on-board sensors to monitor the areas in front of and behind the vehicle and present warnings to the driver about potential hazards.
AVSS04	Lateral Safety Warning	This market package allows for lateral warning. It utilizes safety sensors and collision sensors. It requires on-board sensors to monitor the areas to the sides of the vehicle and present warnings to the driver about potential hazards.	AVSS04	Lateral Safety Warning	This marketservice package allows for lateral warning. It utilizes safety sensors and collision sensors. It requires on-board sensors to monitor the areas to the sides of the vehicle and present warnings to the driver about potential hazards.
AVSS05	Intersection Safety Warning	This market package monitors vehicles approaching an intersection and warns drivers when hazardous conditions are detected. The market package detects impending violations (e.g., red-light violations) and potential conflicts between vehicles occupying or approaching the intersection (e.g., situations where a left turn would be unsafe because of approaching traffic). When a potentially hazardous condition is detected, a warning is communicated to the involved vehicles using short range communications and/or signs/signals in the intersection.	AVSS05	Intersection Safety Warning	This marketservice package monitors vehicles approaching an intersection and warns drivers when hazardous conditions are detected. The marketservice package detects impending violations (e.g., red-light violations) and potential conflicts between vehicles occupying or approaching the intersection (e.g., situations where a left turn would be unsafe because of approaching traffic). When a potentially hazardous condition is detected, a warning is communicated to the involved vehicles using short range communications and/or signs/signals in the intersection.
AVSS06	Pre-Crash Restraint Deployment	This market package provides in-vehicle sensors and on-board communications to monitor the vehicle’s local environment, determine collision probability and deploy a pre-crash safety system. It will include on-board sensors to measure lateral and longitudinal gaps and together with weather and roadway conditions will determine lateral and longitudinal collision probability. It will exchange messages with other equipped vehicles to determine the precise location of surrounding vehicles. It will deploy a pre-crash safety system when a crash is imminent.	AVSS06	Pre- Crash Collision Restraint Deployment	This marketservice package provides in-vehicle sensors and on-board communications to monitor the vehicle’s local environment, determine collision probability and deploy a pre-crash safety system. It will include on-board sensors to measure lateral and longitudinal gaps and together with weather and roadway conditions will determine lateral and longitudinal collision probability. It will exchange messages with other equipped vehicles to determine the precise location of surrounding vehicles. It will deploy a pre-crash safety system when a crash is imminent.
AVSS07	Driver Visibility Improvement	This market package will enhance driver visibility using an enhanced vision system. On-board display hardware is needed	AVSS07	Driver Visibility Improvement	This marketservice package will enhance driver visibility using an enhanced vision system. On-board sensing and display hardware is needed to provide detection and imaging of obstacles under low visibility driving conditions.
AVSS08	Advanced Vehicle Longitudinal Control	This market package automates the speed and headway control functions on board the vehicle. It utilizes safety sensors and collision sensors combined with vehicle dynamics processing to control the throttle and brakes. It requires on-board sensors to measure longitudinal gaps and a processor for controlling the vehicle speed.	AVSS08	Advanced Vehicle Longitudinal Control	This marketservice package automates the speed and headway control functions on board the vehicle. It utilizes safety sensors and collision sensors combined with vehicle dynamics processing to control the throttle and brakes. It requires on-board sensors to measure longitudinal gaps and a processor for controlling the vehicle speed.
AVSS09	Advanced Vehicle Lateral Control	This market package automates the steering control on board the vehicle. It utilizes safety sensors and collision sensors combined with vehicle dynamics processing to control the steering. It requires on-board sensors to measure lane position and lateral deviations and a processor for controlling the vehicle steering.	AVSS09	Advanced Vehicle Lateral Control	This marketservice package automates the steering control on board the vehicle. It utilizes safety sensors and collision sensors combined with vehicle dynamics processing to control the steering. It requires on-board sensors to measure lane position and lateral deviations and a processor for controlling the vehicle steering.
AVSS10	Intersection Collision Avoidance	This market package will determine the probability of an intersection collision and provide timely warnings to approaching vehicles so that avoidance actions can be taken. This market package builds on the Intersection Safety Warning field and in-vehicle equipment and adds equipment in the vehicle that can take control of the vehicle to avoid intersection violations and potential collisions. The same sensors and communications equipment in the roadway infrastructure are used to assess vehicle locations and speeds near an intersection. This information is determined and communicated to the approaching vehicle using a short range communications system. The vehicle uses this information to develop control actions which alter the vehicle’s speed and steering control and potentially activate its pre-crash safety system.	AVSS10	Intersection Collision Avoidance	This marketservice package will determine the probability of an intersection collision and provide timely warnings to approaching vehicles so that avoidance actions can be taken. This marketservice package builds on the Intersection Safety Warning field and in-vehicle equipment and adds equipment in the vehicle that can take control of the vehicle to avoid intersection violations and potential collisions. The same sensors and communications equipment in the roadway infrastructure are used to assess vehicle locations and speeds near an intersection. This information is determined and communicated to the approaching vehicle using a short range communications system. The vehicle uses this information to develop control actions which alter the vehicle’s speed and steering control and potentially activate its pre-crash safety system.

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
AVSS11	Automated Vehicle Operations	This market package enables “hands-off” operation of the vehicle on automated portions of the highway system. Implementation requires lateral lane holding, vehicle speed and steering control. Communications between vehicles and between the vehicles and supporting infrastructure equipment supports cooperative checkin to the automated portion of the system and transition to automated mode, coordination of maneuvers between vehicles in automated mode, and checkout from the automated system as the driver resumes control of the vehicle.	AVSS11	Automated Vehicle Operations Highway System	This market package enables “hands-off” operation of the vehicle on automated portions of the highway system. Implementation requires lateral lane holding, vehicle speed and steering control. Communications between vehicles and between the vehicles and supporting infrastructure equipment supports cooperative checkin to the automated portion of the system and transition to automated mode, coordination of maneuvers between vehicles in automated mode, and checkout from the automated system as the driver resumes control of the vehicle. <u>This service package monitors individual vehicle emissions and provides general air quality monitoring using distributed sensors to collect the data. The collected information is transmitted to the emissions management subsystem for processing. Both area wide air quality monitoring and point emissions monitoring are supported by this service package. For area wide monitoring, this market package measures air quality, identifies sectors that are non-compliant with air quality standards, and collects, stores and reports supporting statistical data. For point emissions monitoring, this market package collects data from on-board diagnostic systems and measures tail pipe emissions to identify vehicles that exceed emissions standards and/or clean vehicles that could be released from standard emissions tests, depending on policy and regulations. Summary emissions information or warnings can also be displayed to drivers. The gathered information can be used to implement environmentally sensitive TDM programs, policies, and regulations.</u>
AVSS12	Cooperative Vehicle Safety Systems	This market package enhances the on-board longitudinal and lateral warning stand-alone systems by exchanging messages with other surrounding vehicles and roadside equipment. Vehicles send out information concerning their location, speed, and direction to surrounding vehicles. The roadside equipment provides information about potential safety hazards in the vehicle path such as stalled (unequipped) vehicles, wrong-way drivers, debris, or water hazards. The on-board systems can then process this information and present warnings to the driver including headway warnings, merge warnings, unsafe passing warnings, and warnings about hazards detected in the vehicle path. Special messages from approaching emergency vehicles may also be received and processed.	AVSS12	Cooperative Vehicle Safety Systems	This market <u>service</u> package enhances the on-board longitudinal and lateral warning stand-alone systems by exchanging messages with other surrounding vehicles and roadside equipment. Vehicles send out information concerning their location, speed, and direction to surrounding vehicles. The roadside equipment provides information about potential safety hazards in the vehicle path such as stalled (unequipped) vehicles, wrong-way drivers, debris, or water hazards. The on-board systems can then process this information and present warnings to the driver including headway warnings, merge warnings, unsafe passing warnings, and warnings about hazards detected in the vehicle path. Special messages from approaching emergency vehicles may also be received and processed.
CVO01	Fleet Administration	This market package provides the capabilities to manage a fleet of commercial vehicles. The Fleet and Freight Management subsystem provides the route for a commercial vehicle by either utilizing an in-house routing software package or an Information Service Provider. Routes generated by either approach are constrained by hazardous materials and other restrictions (such as height or weight). Any such restricted areas are determined by the Commercial Vehicle Administration. A route would be electronically sent to the Commercial Vehicle with any appropriate dispatch instructions. The location of the Commercial Vehicle can be monitored by the Fleet and Freight Management subsystem and routing changes can be made depending on current road network conditions. Once a route has been assigned, changes must be coordinated between the Fleet and Freight Management subsystem and the Commercial Vehicle. Commercial Vehicle Drivers would be alerted to any changes in route from the planned route and given an opportunity to justify a rerouting. Any unauthorized or unexpected route changes by the Commercial Vehicle will register a route deviation alert with the Fleet and Freight Management subsystem. The Fleet and Freight Management subsystem can also notify local public safety agencies of the route deviation when appropriate (e.g., if there is safety sensitive HAZMAT being carried), by sending an alarm to the Emergency Management subsystem.	CVO01	Fleet Administration	This market <u>service</u> package provides the capabilities to manage a fleet of commercial vehicles. The Fleet and Freight Management subsystem provides the route for a commercial vehicle by either utilizing an in-house routing software package or an Information Service Provider. Routes generated by either approach are constrained by hazardous materials and other restrictions (such as height or weight). Any such restricted areas are determined by the Commercial Vehicle Administration. A route would be electronically sent to the Commercial Vehicle with any appropriate dispatch instructions. The location of the Commercial Vehicle can be monitored by the Fleet and Freight Management subsystem and routing changes can be made depending on current road network conditions. Once a route has been assigned, changes must be coordinated between the Fleet and Freight Management subsystem and the Commercial Vehicle. Commercial Vehicle Drivers would be alerted to any changes in route from the planned route and given an opportunity to justify a rerouting. Any unauthorized or unexpected route changes by the Commercial Vehicle will register a route deviation alert with the Fleet and Freight Management subsystem. The Fleet and Freight Management subsystem can also notify local public safety agencies of the route deviation when appropriate (e.g., if there is safety sensitive HAZMAT being carried), by sending an alarm to the Emergency Management subsystem.

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
CVO02	Freight Administration	This market package tracks the movement of cargo and monitors the cargo condition. Interconnections are provided to intermodal freight shippers and intermodal freight depots for tracking of cargo from source to destination. In addition to the usual cargo monitoring required to insure that cargo gets from origin to destination, the Fleet and Freight Management subsystem monitors shipments to make sure that no tampering or breach of security occurs to the cargo on commercial vehicles. Any such tampering will be reported to the Fleet and Freight Management subsystem. In addition to exceptions (e.g., alerts) that are reported, on-going indications of the state of the various freight equipment are reported to the Fleet and Freight Management subsystem. The commercial vehicle driver is also alerted of any tampering or breach of cargo security. Freight managers may decide to take further action on the alerts and/or provide responses that explain that the alerts are false alarms. If no explanation is received, the Fleet and Freight Management subsystem may notify the Emergency Management subsystem.	CVO02	Freight Administration	This market+service package tracks the movement of eargointermodal freight equipment and monitors the eargoequipment condition. Interconnections are provided to intermodal freight-shipperscustomers and intermodal freight-depotterminals for tracking of cargo from source to destination. In addition to the usual eargoequipment monitoring required to insure that eargo-getsthey get from origin to destination, the Fleet and Freight Management subsystem monitors shipments to make sure that no tampering or breach of security occurs to the eargointermodal freight equipment on commercial vehicles. Any such tampering will be reported to the Fleet and Freight Management subsystem. In addition to exceptions (e.g., alerts) that are reported, on-going indications of the state of the various freight equipment (temperature, shock and vibration, etc.) are reported to the Fleet and Freight Management subsystem. The commercial vehicle driver is also alerted of any exceptions or tampering or breach of eargoequipment security. Freight managers may decide to take further action on the alerts and/or provide responses that explain that the alerts are false alarms. If no explanation is received, the Fleet and Freight Management subsystem may notify the Emergency Management subsystem.
CVO03	Electronic Clearance	This market package provides for automated clearance at roadside check facilities. The roadside check facility communicates with the Commercial Vehicle Administration subsystem to retrieve infrastructure snapshots of critical carrier, vehicle, and driver data to be used to sort passing vehicles. This allows a good driver/vehicle/carrier to pass roadside facilities at highway speeds using transponders and Field-Vehicle Communications to the roadside. Results of roadside clearance activities will be passed on to the Commercial Vehicle Administration. The roadside check facility may be equipped with Automated Vehicle Identification (AVI), weighing sensors, transponder read/write devices and computer workstations.	CVO03	Electronic Clearance	This market+service package provides for automated clearance at roadside check facilities. The roadside check facility communicates with the Commercial Vehicle Administration subsystem to retrieve infrastructure snapshots of critical carrier, vehicle, and driver data to be used to sort passing vehicles. This allows a good driver/vehicle/carrier to pass roadside facilities at highway speeds using transponders and Field-Vehicle Communications to the roadside. Results of roadside clearance activities will be passed on to the Commercial Vehicle Administration. The roadside check facility may be equipped with Automated Vehicle Identification (AVI), weighing sensors, transponder read/write devices and computer workstations.
CVO04	CV Administrative Processes	This market package provides for electronic application, processing, fee collection, issuance, and distribution of CVO credential and tax filing. Through this process, carriers, drivers, and vehicles may be enrolled in the electronic clearance program provided by a separate market package which allows commercial vehicles to be screened at mainline speeds at roadside check facilities. Through this enrollment process, current profile databases are maintained in the Commercial Vehicle Administration subsystem and snapshots of this database are made available to the roadside check facilities at the roadside to support the electronic clearance process. Commercial Vehicle Administration subsystems can share credential information with other Commercial Vehicle Administration subsystems, so that it is possible for any Commercial Vehicle Administration subsystem to have access to all credentials, credential fees, credentials status and safety status information. In addition, it is possible for one Commercial Vehicle Administration subsystem to collect HAZMAT route restrictions information from other Commercial Vehicle Administration subsystems and then act as a clearinghouse for this route restrictions information for Information Service Providers, Map Update Providers, and Fleet and Freight Management subsystems.	CVO04	CV Administrative Processes	This market+service package provides for electronic application, processing, fee collection, issuance, and distribution of CVO credential and tax filing. Through this process, carriers, drivers, and vehicles may be enrolled in the electronic clearance program provided by a separate market+service package which allows commercial vehicles to be screened at mainline speeds at roadside check facilities. Through this enrollment process, current profile databases are maintained in the Commercial Vehicle Administration subsystem and snapshots of this database are made available to the roadside check facilities at the roadside to support the electronic clearance process. Commercial Vehicle Administration subsystems can share credential information with other Commercial Vehicle Administration subsystems, so that it is possible for any Commercial Vehicle Administration subsystem to have access to all credentials, credential fees, credentials status and safety status information. In addition, it is possible for one Commercial Vehicle Administration subsystem to collect HAZMAT route restrictions information from other Commercial Vehicle Administration subsystems and then act as a clearinghouse for this route restrictions information for Information Service Providers, Map Update Providers, and Fleet and Freight Management subsystems.
CVO05	International Border Electronic Clearance	This market package provides for automated clearance at international border crossings. It augments the Electronic Clearance market package by allowing interface with border administration and border inspection related functions. This market package processes the entry documentation for vehicle, cargo, and driver, checks compliance with import/export and immigration regulations, handles duty fee processing, and reports the results of the crossing event to manage release of commercial vehicle, cargo, and driver across an international border. It interfaces with administrative systems used by customs and border protection, immigration, carriers, and service providers (e.g., brokers) and inspection systems at international border crossings to generate, process, and store entry documentation.	CVO05	International Border Electronic Clearance	This market+service package provides for automated clearance at international border crossings. It augments the Electronic Clearance market+service package by allowing interface with border administration and border inspection related functions. This market+service package processes the entry documentation for vehicle, cargo, and driver, checks compliance with import/export and immigration regulations, handles duty fee processing, and reports the results of the crossing event to manage release of commercial vehicle, cargo, and driver across an international border. It interfaces with administrative systems used by customs and border protection, immigration, carriers, and service providers (e.g., brokers) and inspection systems at international border crossings to generate, process, and store entry documentation.
CVO06	Weigh-In-Motion	This market package provides for high speed weigh-in-motion with or without Automated Vehicle Identification (AVI) capabilities. This market package provides the roadside equipment that could be used as a stand-alone system or to augment the Electronic Clearance (CVO03) market package.	CVO06	Weigh-In-Motion	This market+service package provides for high speed weigh-in-motion with or without Automated Vehicle Identification (AVI) capabilities. This market+service package provides the roadside equipment that could be used as a stand-alone system or to augment the CVO03: Electronic Clearance (CVO03) market+service package.

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
CVO07	Roadside CVO Safety	This market package provides for automated roadside safety monitoring and reporting. It automates commercial vehicle safety inspections at the roadside check locations. The capabilities for performing the safety inspection are shared between this market package and the On-board CVO and Freight Safety & Security (CVO08) Market Package which enables a variety of implementation options. The basic option, directly supported by this market package, facilitates safety inspection of vehicles that have been pulled off the highway, perhaps as a result of the automated screening process provided by the Electronic Clearance (CVO03) Market Package. In this scenario, only basic identification data and status information is read from the electronic tag on the commercial vehicle. The identification data from the tag enables access to additional safety data maintained in the infrastructure which is used to support the safety inspection, and may also inform the pull-in decision if system timing requirements can be met. More advanced implementations, supported by the On-board CVO and Freight Safety & Security (CVO08) market package, utilize additional on-board vehicle safety monitoring and reporting capabilities in the commercial vehicle to augment the roadside safety check.	CVO07	Roadside CVO Safety	This marketservice package provides for automated roadside safety monitoring and reporting. It automates commercial vehicle safety inspections at the roadside check locations. The capabilities for performing the safety inspection are shared between this marketservice package and the CVO08: On-board CVO and Freight Safety & Security (CVO08) Market Packageservice package which enables a variety of implementation options. The basic option, directly supported by this marketservice package, facilitates safety inspection of vehicles that have been pulled off the highway, perhaps as a result of the automated screening process provided by the CVO03: Electronic Clearance (CVO03) Market Packageservice package . In this scenario, only basic identification data and status information is read from the electronic tag on the commercial vehicle. The identification data from the tag enables access to additional safety data maintained in the infrastructure which is used to support the safety inspection, and may also inform the pull-in decision if system timing requirements can be met. More advanced implementations, supported by the CVO08: On-board CVO and Freight Safety & Security (CVO08) marketservice package , utilize additional on-board vehicle safety monitoring and reporting capabilities in the commercial vehicle to augment the roadside safety check.
CVO08	On-board CVO and Freight Safety and Security	This market package provides for on-board commercial vehicle safety monitoring and reporting. It is an enhancement of the Roadside CVO Safety Market Package and includes roadside support for reading on-board safety data via tags. Safety warnings are provided to the driver as a priority with secondary requirements to notify the Commercial Vehicle Check roadside elements. This market package allows for the Fleet and Freight Management subsystem to have access to the on-board safety data. In addition to safety data, this market package provides a means for monitoring the security of the Commercial Vehicle along with the cargo, containers, trailers, and other equipment that are being hauled. Commercial Vehicle on-board tamper and breach sensors provide an indication of any security irregularities and the sensor data is provided to the Fleet and Freight Management subsystem along with particular notification of any breach alerts. Commercial Vehicle Drivers may be aware of the sensor readings and can provide an explanation back to the Fleet and Freight Management subsystem via the Commercial Vehicle. Commercial vehicle and freight security breaches are also sent to the commercial vehicle check.	CVO08	On-board CVO and Freight Safety and Security	This marketservice package provides for on-board commercial vehicle safety monitoring and reporting. It is an enhancement of the Roadside CVO Safety Market Packageservice package and includes roadside support for reading on-board safety data via tags. Safety warnings are provided to the driver as a priority with secondary requirements to notify the Commercial Vehicle Check roadside elements. This marketservice package allows for the Fleet and Freight Management subsystem to have access to the on-board safety data. In addition to safety data, this marketservice package provides a means for monitoring the security of the Commercial Vehicle along with the cargo, containers, trailers, and other equipment that are being hauled. Commercial Vehicle on-board tamper and breach sensors provide an indication of any security irregularities and the sensor data is provided to the Fleet and Freight Management subsystem along with particular notification of any breach alerts. Commercial Vehicle Drivers may be aware of the sensor readings and can provide an explanation back to the Fleet and Freight Management subsystem via the Commercial Vehicle. Commercial vehicle and freight security breaches are also sent to the commercial vehicle check.
CVO09	CVO Fleet Maintenance	This market package supports maintenance of CVO fleet vehicles with on-board monitoring equipment and Automated Vehicle Location (AVL) capabilities within the Fleet and Freight Management Subsystem. Records of vehicle mileage, repairs, and safety violations are maintained to assure safe vehicles on the highway.	CVO09	CVO Fleet Maintenance	This marketservice package supports maintenance of CVO fleet vehicles with on-board monitoring equipment and Automated Vehicle Location (AVL) capabilities within the Fleet and Freight Management Subsystem. Records of vehicle mileage, repairs, and safety violations are maintained to assure safe vehicles on the highway.
CVO10	HAZMAT Management	This market package integrates incident management capabilities with commercial vehicle tracking to assure effective treatment of HAZMAT material and incidents. HAZMAT tracking is performed by the Fleet and Freight Management Subsystem. The Emergency Management subsystem is notified by the Commercial Vehicle if an incident occurs and coordinates the response. The response is tailored based on information that is provided as part of the original incident notification or derived from supplemental information provided by the Fleet and Freight Management Subsystem. The latter information can be provided prior to the beginning of the trip or gathered following the incident depending on the selected policy and implementation.	CVO10	HAZMAT ManagementHazardous Material Planning and Incident Response	This marketservice package integrates incident management capabilities with commercial vehicle tracking to assure effective treatment of HAZMAT material and incidents. HAZMAT tracking is performed by the Fleet and Freight Management Subsystem. The Emergency Management subsystem is notified by the Commercial Vehicle if an incident occurs and coordinates the response. The response is tailored based on information that is provided as part of the original incident notification or derived from supplemental information provided by the Fleet and Freight Management Subsystem. The latter information can be provided prior to the beginning of the trip or gathered following the incident depending on the selected policy and implementation.
CVO11	Roadside HAZMAT Security Detection and Mitigation	This market package provides the capability to detect and classify security sensitive HAZMAT on commercial vehicles using roadside sensing and imaging technology. Credentials information can be accessed to verify if the commercial driver, vehicle and carrier are permitted to transport the identified HAZMAT. If the credentials analysis and sensed HAZMAT information do not agree, the vehicle can be signaled to pull off the highway, and if required, an alarm can be sent to Emergency Management to request they monitor, traffic stop or disable the vehicle.	CVO11	Roadside HAZMATHazardous Material Security Detection and Mitigation	This marketservice package provides the capability to detect and classify security sensitive HAZMAT on commercial vehicles using roadside sensing and imaging technology. Credentials information can be accessed to verify if the commercial driver, vehicle and carrier are permitted to transport the identified HAZMAT. If the credentials analysis and sensed HAZMAT information do not agree, the vehicle can be signaled to pull off the highway, and if required, an alarm can be sent to Emergency Management to request they monitor, traffic stop or disable the vehicle.

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
CVO12	CV Driver Security Authentication	This market package provides the ability for Fleet and Freight Management to detect when an unauthorized commercial vehicle driver attempts to drive their vehicle based on stored driver identity information. If an unauthorized driver has been detected, Fleet and Freight Management can activate commands to safely disable the commercial vehicle. Alarms can also be sent to emergency management to inform them of a potential commercial vehicle hijacking or theft and potential hazardous situation. In addition, Emergency Management can request Fleet and Freight Management to disable a specific vehicle in their fleet.	CVO12	CV Driver Security Authentication	This market-service package provides the ability for Fleet and Freight Management to detect when an unauthorized commercial vehicle driver attempts to drive their vehicle based on stored driver identity information. If an unauthorized driver has been detected, Fleet and Freight Management can activate commands to safely disable the commercial vehicle. Alarms can also be sent to emergency management to inform them of a potential commercial vehicle hijacking or theft and potential hazardous situation. In addition, Emergency Management can request Fleet and Freight Management to disable a specific vehicle in their fleet.
CVO13	Freight Assignment Tracking	This market package provides for the planning and tracking of three aspects of commercial vehicle shipments. For each shipment, the commercial vehicle, the freight equipment, and the commercial vehicle driver are monitored for consistency with the planned assignment. Any unauthorized changes are determined by the Fleet and Freight Management subsystem and then the appropriate people and subsystems are notified. Data collected by the On-board CV and Freight Safety & Security and the On-board Driver Authentication equipment packages used in other market packages are also used to monitor the three aspects of assignment for this market package. In addition to this market package, Fleet and Freight Managers may also monitor routes and itineraries and this capability is included in Fleet Administration.	CVO13	Freight Assignment Tracking	This market-service package provides for the planning and tracking of three aspects of commercial vehicle shipments. For each shipment, the commercial vehicle, the freight equipment, and the commercial vehicle driver are monitored for consistency with the planned assignment. Any unauthorized changes are determined by the Fleet and Freight Management subsystem and then the appropriate people and subsystems are notified. Data collected by the On-board CV and Freight Safety & Security and the On-board Driver Authentication equipment packages used in other market-service packages are also used to monitor the three aspects of assignment for this market-service package. In addition to this market-service package, Fleet and Freight Managers may also monitor routes and itineraries and this capability is included in Fleet Administration.
EM01	Emergency Call-Taking and Dispatch	This market package provides basic public safety call-taking and dispatch services. It includes emergency vehicle equipment, equipment used to receive and route emergency calls, and wireless communications that enable safe and rapid deployment of appropriate resources to an emergency. Coordination between Emergency Management Subsystems supports emergency notification between agencies. Wide area wireless communications between the Emergency Management Subsystem and an Emergency Vehicle supports dispatch and provision of information to responding personnel.	EM01	Emergency Call-Taking and Dispatch	This market-service package provides basic public safety call-taking and dispatch services. It includes emergency vehicle equipment, equipment used to receive and route emergency calls, and wireless communications that enable safe and rapid deployment of appropriate resources to an emergency. Coordination between Emergency Management Subsystems supports emergency notification between agencies. Wide area wireless communications between the Emergency Management Subsystem and an Emergency Vehicle supports dispatch and provision of information to responding personnel.
EM02	Emergency Routing	This market package supports automated vehicle location and dynamic routing of emergency vehicles. Traffic information, road conditions, and suggested routing information are provided to enhance emergency vehicle routing. Special priority or other specific emergency traffic control strategies can be coordinated to improve the safety and time-efficiency of responding vehicle travel on the selected route(s). The Emergency Management Subsystem provides the routing for the emergency fleet based on real-time conditions and has the option of requesting a route from the Traffic Management subsystem. The Emergency Vehicle may also be equipped with dedicated short range communications for local signal preemption and the transmission of alerts to surrounding vehicles. The service provides for information exchange between care facilities and both the Emergency Management Subsystem and emergency vehicles.	EM02	Emergency Routing	This market-service package supports automated vehicle location and dynamic routing of emergency vehicles. Traffic information, road conditions, and suggested routing information are provided to enhance emergency vehicle routing. Special priority or other specific emergency traffic control strategies can be coordinated to improve the safety and time-efficiency of responding vehicle travel on the selected route(s). The Emergency Management Subsystem provides the routing for the emergency fleet based on real-time conditions and has the option of requesting a route from the Traffic Management subsystem. The Emergency Vehicle may also be equipped with dedicated short range communications for local signal preemption and the transmission of alerts to surrounding vehicles. The service provides for information exchange between care facilities and both the Emergency Management Subsystem and emergency vehicles.
EM03	Mayday and Alarms Support	This market package allows the user (driver or non-driver) to initiate a request for emergency assistance and enables the Emergency Management Subsystem to locate the user, gather information about the incident, and determine the appropriate response. The request for assistance may be manually initiated or automated and linked to vehicle sensors. This market package also includes general surveillance capabilities that enable the Emergency Management Subsystem to remotely monitor public areas (e.g., rest stops, parking lots) to improve security in these areas. The Emergency Management Subsystem may be operated by the public sector or by a private sector telematics service provider.	EM03	MaydayPersonal Security and AlarmsMAYDAY Support	This market-service package allows the user (driver or non-driver) to initiate a request for emergency assistance and enables the Emergency Management Subsystem to locate the user, gather information about the incident, and determine the appropriate response. The request for assistance may be manually initiated or automated and linked to vehicle sensors. This market-service package also includes general surveillance capabilities that enable the Emergency Management Subsystem to remotely monitor public areas (e.g., rest stops, parking lots) to improve security in these areas. The Emergency Management Subsystem may be operated by the public sector or by a private sector telematics service provider.
EM04	Roadway Service Patrols	This market package supports roadway service patrol vehicles that monitor roads that aid motorists, offering rapid response to minor incidents (flat tire, accidents, out of gas) to minimize disruption to the traffic stream. If problems are detected, the roadway service patrol vehicles will provide assistance to the motorist (e.g., push a vehicle to the shoulder or median). The market package monitors service patrol vehicle locations and supports vehicle dispatch to identified incident locations. Incident information collected by the service patrol is shared with traffic, maintenance and construction, and traveler information systems.	EM04	Roadway Service Patrols	This market-service package supports roadway service patrol vehicles that monitor roads that aid motorists, offering rapid response to minor incidents (flat tire, accidents, out of gas) to minimize disruption to the traffic stream. If problems are detected, the roadway service patrol vehicles will provide assistance to the motorist (e.g., push a vehicle to the shoulder or median). The market-service package monitors service patrol vehicle locations and supports vehicle dispatch to identified incident locations. Incident information collected by the service patrol is shared with traffic, maintenance and construction, and travelertraveller information systems.

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
EM05	Transportation Infrastructure Protection	This market package includes the monitoring of transportation infrastructure (e.g., bridges, tunnels and management centers) for potential threats using sensors and surveillance equipment and barrier and safeguard systems to control access, preclude an incident, and mitigate the impact of an incident if it occurs. Threats can result from acts of nature (e.g., hurricanes, earthquakes), terrorist attacks or other incidents causing damage to the infrastructure (e.g., stray barge hitting a bridge support). Infrastructure may be monitored with acoustic, environmental threat (such as nuclear, biological, chemical, and explosives), infrastructure condition and integrity, motion and object sensors and video and audio surveillance equipment. Data from such sensors and surveillance equipment may be processed in the field or sent to a center for processing. The data enables operators at the center to detect and verify threats. When a threat is detected, agencies are notified. Detected threats or advisories received from other agencies result in an increased level of system preparedness. In response to threats, barrier and safeguard systems may be activated by Traffic Management Subsystems to deter an incident, control access to an area or mitigate the impact of an incident. Barrier systems include gates, barriers and other automated and remotely controlled systems that manage entry to transportation infrastructure. Safeguard systems include blast shields, exhaust systems and other automated and remotely controlled systems that mitigate impact of an incident.	EM05	Transportation Infrastructure Protection	This market service package includes the monitoring of transportation infrastructure (e.g., bridges, tunnels and management centers centres) for potential threats using sensors and surveillance equipment and barrier and safeguard systems to control access, preclude an incident, and mitigate the impact of an incident if it occurs. Threats can result from acts of nature (e.g., hurricanes, earthquakes), terrorist attacks or other incidents causing damage to the infrastructure (e.g., stray barge hitting a bridge support). Infrastructure may be monitored with acoustic, environmental threat (such as nuclear, biological, chemical, and explosives), infrastructure condition and integrity, motion and object sensors and video and audio surveillance equipment. Data from such sensors and surveillance equipment may be processed in the field or sent to a center centre for processing. The data enables operators at the center centre to detect and verify threats. When a threat is detected, agencies are notified. Detected threats or advisories received from other agencies result in an increased level of system preparedness. In response to threats, barrier and safeguard systems may be activated by Traffic Management Subsystems to deter an incident, control access to an area or mitigate the impact of an incident. Barrier systems include gates, barriers and other automated and remotely controlled systems that manage entry to transportation infrastructure. Safeguard systems include blast shields, exhaust systems and other automated and remotely controlled systems that mitigate impact of an incident.
EM06	Wide-Area Alert	This market package uses ITS driver and traveler information systems to alert the public in emergency situations such as child abductions, severe weather events, civil emergencies, and other situations that pose a threat to life and property. The alert includes information and instructions for transportation system operators and the traveling public, improving public safety and enlisting the public’s help in some scenarios. The ITS technologies will supplement and support other emergency and homeland security alert systems such as the Emergency Alert System (EAS). When an emergency situation is reported and verified and the terms and conditions for system activation are satisfied, a designated agency broadcasts emergency information to traffic agencies, transit agencies, information service providers, toll operators, and others that operate ITS systems. The ITS systems, in turn, provide the alert information to transportation system operators and the traveling public using ITS technologies such as dynamic message signs, highway advisory radios, in-vehicle displays, transit displays, 511 traveler information systems, and traveler information web sites.	EM06	Wide-Area Alert	This market service package uses ITS driver and traveler traveller information systems to alert the public in emergency situations such as child abductions, severe weather events, civil emergencies, and other situations that pose a threat to life and property. The alert includes information and instructions for transportation system operators and the traveling travelling public, improving public safety and enlisting the public’s help in some scenarios. The ITS technologies will supplement and support other emergency and homeland security alert systems such as the Emergency Alert System (EAS). When an emergency situation is reported and verified and the terms and conditions for system activation are satisfied, a designated agency broadcasts emergency information to traffic agencies, transit agencies, information service providers, toll operators, and others that operate ITS systems. The ITS systems, in turn, provide the alert information to transportation system operators and the traveling travelling public using ITS technologies such as dynamic message signs, highway advisory radios, in-vehicle displays, transit displays, 511 traveler traveller information systems, and traveler traveller information web sites.
EM07	Early Warning System	This market package monitors and detects potential, looming, and actual disasters including natural disasters (hurricanes, earthquakes, floods, winter storms, tsunamis, etc.) and technological and man-made disasters (hazardous materials incidents, nuclear power plant accidents, and acts of terrorism including nuclear, chemical, biological, and radiological weapons attacks). The market package monitors alerting and advisory systems, ITS sensors and surveillance systems, field reports, and emergency call-taking systems to identify emergencies and notifies all responding agencies of detected emergencies.	EM07	Early Warning System	This market service package monitors and detects potential, looming, and actual disasters including natural disasters (hurricanes, earthquakes, floods, winter storms, tsunamis, etc.) and technological and man-made disasters (hazardous materials incidents, nuclear power plant accidents, and acts of terrorism including nuclear, chemical, biological, and radiological weapons attacks). The market service package monitors alerting and advisory systems, ITS sensors and surveillance systems, field reports, and emergency call-taking systems to identify emergencies and notifies all responding agencies of detected emergencies.

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
EM08	Disaster Response and Recovery	<p>This market package enhances the ability of the surface transportation system to respond to and recover from disasters. It addresses the most severe incidents that require an extraordinary response from outside the local community. All types of disasters are addressed including natural disasters (hurricanes, earthquakes, floods, winter storms, tsunamis, etc.) and technological and man-made disasters (hazardous materials incidents, nuclear power plant accidents, and national security emergencies such as nuclear, chemical, biological, and radiological weapons attacks).</p> <p>The market package supports coordination of emergency response plans, including general plans developed before a disaster as well as specific tactical plans with short time horizon that are developed as part of a disaster response. The market package provides enhanced access to the scene for response personnel and resources, provides better information about the transportation system in the vicinity of the disaster, and maintains situation awareness regarding the disaster itself. In addition, this market package tracks and coordinates the transportation resources - the transportation professionals, equipment, and materials - that constitute a portion of the disaster response.</p> <p>The market package identifies the key points of integration between transportation systems and the public safety, emergency management, public health, and other allied organizations that form the overall disaster response. In this market package, the Emergency Management subsystem represents the federal, regional, state, and local Emergency Operations Centers and the Incident Commands that are established to respond to the disaster. The interface between the Emergency Management Subsystem and the other center subsystems provides situation awareness and resource coordination among transportation and other allied response agencies. In its role, traffic management implements special traffic control strategies and detours and restrictions to effectively manage traffic in and around the disaster. Maintenance and construction provides damage assessment of road network facilities and manages service restoration. Transit management provides a similar assessment of status for transit facilities and modifies transit operations to meet the special demands of the disaster. As immediate public safety concerns are addressed and disaster response transitions into recovery, this market package supports transition back to normal transportation system operation, recovering resources, managing on-going transportation facility repair, supporting data collection and revised plan coordination, and other recovery activities.</p> <p>This market package builds on the basic traffic incident response service that is provided by ATMS08, the Traffic Incident Management market package. This market package addresses the additional complexities and coordination requirements that are associated with the most severe incidents that warrant an extraordinary response from outside the local jurisdictions and require special measures such as the activation of one or more emergency operations centers. Many users of the National ITS Architecture will want to consider both ATMS08 and this market package since every region is concerned with both day-to-day management of traffic-related incidents and occasional management of disasters that require extraordinary response.</p> <p>Disaster Response and Recovery is also supported by EM10, the "Disaster Traveler Information" market package that keeps the public informed during a disaster response. See that market package for more information.</p>	EM08	Disaster Response and Recovery	<p>This marketservice package enhances the ability of the surface transportation system to respond to and recover from disasters. It addresses the most severe incidents that require an extraordinary response from outside the local community. All types of disasters are addressed including natural disasters (hurricanes, earthquakes, floods, winter storms, tsunamis, etc.) and technological and man-made disasters (hazardous materials incidents, nuclear power plant accidents, and national security emergencies such as nuclear, chemical, biological, and radiological weapons attacks).</p> <p><u>The marketservice package supports coordination of emergency response plans, including general plans developed before a disaster as well as specific tactical plans with short time horizon that are developed as part of a disaster response. The marketservice package provides enhanced access to the scene for response personnel and resources, provides better information about the transportation system in the vicinity of the disaster, and maintains situation awareness regarding the disaster itself. In addition, this marketservice package tracks and coordinates the transportation resources - the transportation professionals, equipment, and materials - that constitute a portion of the disaster response.</u></p> <p>The market package identifies the key points of integration between transportation systems and the public safety, emergency management, public health, and other allied organizations that form the overall disaster response. In this market package, the Emergency Management subsystem represents the federal, regional, state, and local Emergency Operations Centers and the Incident Commands that are established to respond to the disaster. The interface between the Emergency Management Subsystem and the other center subsystems provides situation awareness and resource coordination among transportation and other allied response agencies. In its role, traffic management implements special traffic control strategies and detours and restrictions to effectively manage traffic in and around the disaster. Maintenance and construction provides damage assessment of road network facilities and manages service restoration. Transit management provides a similar assessment of status for transit facilities and modifies transit operations to meet the special demands of the disaster. As immediate public safety concerns are addressed and disaster response transitions into recovery, this market package supports transition back to normal transportation system operation, recovering resources, managing on-going transportation facility repair, supporting data collection and revised plan coordination, and other recovery activities.</p> <p>This market package builds on the basic traffic incident response service that is provided by ATMS08, the Traffic Incident Management market package. This market package addresses the additional complexities and coordination requirements that are associated with the most severe incidents that warrant an extraordinary response from outside the local jurisdictions and require special measures such as the activation of one or more emergency operations centers. Many users of the National ITS Architecture will want to consider both ATMS08 and this market package since every region is concerned with both day-to-day management of traffic-related incidents and occasional management of disasters that require extraordinary response.</p> <p>Disaster Response and Recovery is also supported by EM10, the "Disaster Traveler Information" market package that keeps the public informed during a disaster response. See that market package for more information.</p>

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
EM09	Evacuation and Reentry Management	<p>This market package supports evacuation of the general public from a disaster area and manages subsequent reentry to the disaster area. The market package addresses evacuations for all types of disasters, including disasters like hurricanes that are anticipated and occur slowly, allowing a well-planned orderly evacuation, as well as disasters like terrorist acts that occur rapidly, without warning, and allow little or no time for preparation or public warning.</p> <p>This market package supports coordination of evacuation plans among the federal, state, and local transportation, emergency, and law enforcement agencies that may be involved in a large-scale evacuation. All affected jurisdictions (e.g., states and counties) at the evacuation origin, evacuation destination, and along the evacuation route are informed of the plan. Information is shared with traffic management agencies to implement special traffic control strategies and to control evacuation traffic, including traffic on local streets and arterials as well as the major evacuation routes. Reversible lanes, shoulder use, closures, special signal control strategies, and other special strategies may be implemented to maximize capacity along the evacuation routes. Transit resources play an important role in an evacuation, removing many people from an evacuated area while making efficient use of limited capacity. Additional shared transit resources may be added and managed in evacuation scenarios. Resource requirements are forecast based on the evacuation plans, and the necessary resources are located, shared between agencies if necessary, and deployed at the right locations at the appropriate times.</p> <p>Evacuations are also supported by EM10, the "Disaster Traveler Information" market package, which keeps the public informed during evacuations. See that market package for more information.</p>	EM09	Evacuation and Reentry Management	<p>This marketservice package supports evacuation of the general public from a disaster area and manages subsequent reentry to the disaster area. The marketservice package addresses evacuations for all types of disasters, including disasters like hurricanes that are anticipated and occur slowly, allowing a well-planned orderly evacuation, as well as disasters like terrorist acts that occur rapidly, without warning, and allow little or no time for preparation or public warning.</p> <p>_This marketservice package supports coordination of evacuation plans among the federal, stateprovincial, and local transportation, emergency, and law enforcement agencies that may be involved in a large-scale evacuation. All affected jurisdictions (e.g., provinces/states and counties) at the evacuation origin, evacuation destination, and along the evacuation route are informed of the plan. Information is shared with traffic management agencies to implement special traffic control strategies and to control evacuation traffic, including traffic on local streets and arterials as well as the major evacuation routes. Reversible lanes, shoulder use, closures, special signal control strategies, and other special strategies may be implemented to maximize capacity along the evacuation routes. Transit resources play an important role in an evacuation, removing many people from an evacuated area while making efficient use of limited capacity. Additional shared transit resources may be added and managed in evacuation scenarios. Resource requirements are forecast based on the evacuation plans, and the necessary resources are located, shared between agencies if necessary, and deployed at the right locations at the appropriate times.</p> <p>Evacuations are also supported by EM10, the "Disaster Traveler Information" market package, which keeps the public informed during evacuations. See that market package for more information.</p>

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
EM10	Disaster Traveler Information	<p>This market package uses ITS to provide disaster-related traveler information to the general public, including evacuation and reentry information and other information concerning the operation of the transportation system during a disaster. This market package collects information from multiple sources including traffic, transit, public safety, emergency management, shelter provider, and travel service provider organizations. The collected information is processed and the public is provided with real-time disaster and evacuation information using ITS traveler information systems.</p> <p>A disaster will stress the surface transportation system since it may damage transportation facilities at the same time that it places unique demands on these facilities to support public evacuation and provide access for emergency responders. Similarly, a disaster may interrupt or degrade the operation of many traveler information systems at the same time that safety-critical information must be provided to the traveling public. This market package keeps the public informed in these scenarios, using all available means to provide information about the disaster area including damage to the transportation system, detours and closures in effect, special traffic restrictions and allowances, special transit schedules, and real-time information on traffic conditions and transit system performance in and around the disaster.</p> <p>This market package also provides emergency information to assist the public with evacuations when necessary. Information on mandatory and voluntary evacuation zones, evacuation times, and instructions are provided. Available evacuation routes and destinations and current and anticipated travel conditions along those routes are provided so evacuees are prepared and know their destination and preferred evacuation route. Information on available transit services and traveler services (shelters, medical services, hotels, restaurants, gas stations, etc.) is also provided. In addition to general evacuation information, this market package provides specific evacuation trip planning information that is tailored for the evacuee based on origin, selected destination, and evacuee-specified evacuation requirements and route parameters.</p> <p>This market package augments the ATIS market packages that provide traveler information on a day-to-day basis for the surface transportation system. This market package provides focus on the special requirements for traveler information dissemination in disaster situations.</p>	EM10	Disaster Traveler Traveller Information	<p>This marketservice package uses ITS to provide disaster-related travelertraveller information to the general public, including evacuation and reentry information and other information concerning the operation of the transportation system during a disaster. This marketservice package collects information from multiple sources including traffic, transit, public safety, emergency management, shelter provider, and travel service provider organizations. The collected information is processed and the public is provided with real-time disaster and evacuation information using ITS travelertraveller information systems.</p> <p>A disaster will stress the surface transportation system since it may damage transportation facilities at the same time that it places unique demands on these facilities to support public evacuation and provide access for emergency responders. Similarly, a disaster may interrupt or degrade the operation of many traveler information systems at the same time that safety-critical information must be provided to the traveling public. This market package keeps the public informed in these scenarios, using all available means to provide information about the disaster area including damage to the transportation system, detours and closures in effect, special traffic restrictions and allowances, special transit schedules, and real-time information on traffic conditions and transit system performance in and around the disaster.</p> <p>This marketservice package also provides emergency information to assist the public with evacuations when necessary. Information on mandatory and voluntary evacuation zones, evacuation times, and instructions are provided. Available evacuation routes and destinations and current and anticipated travel conditions along those routes are provided so evacuees are prepared and know their destination and preferred evacuation route. Information on available transit services and travelertraveller services (shelters, medical services, hotels, restaurants, gas stations, etc.) is also provided. In addition to general evacuation information, this marketservice package provides specific evacuation trip planning information that is tailored for the evacuee based on origin, selected destination, and evacuee-specified evacuation requirements and route parameters.</p> <p>This market package augments the ATIS market packages that provide traveler information on a day-to-day basis for the surface transportation system. This market package provides focus on the special requirements for traveler information dissemination in disaster situations.</p>
MC01	Maintenance and Construction Vehicle and Equipment Tracking	<p>This market package will track the location of maintenance and construction vehicles and other equipment to ascertain the progress of their activities. These activities can include ensuring the correct roads are being plowed and work activity is being performed at the correct locations.</p>	MC01	Maintenance and Construction Vehicle and Equipment Tracking	<p>This marketservice package will track the location of maintenance and construction vehicles and other equipment to ascertain the progress of their activities. These activities can include ensuring the correct roads are being plowed and work activity is being performed at the correct locations.</p>
MC02	Maintenance and Construction Vehicle Maintenance	<p>This market package performs vehicle maintenance scheduling and manages both routine and corrective maintenance activities on vehicles and other maintenance and construction equipment. It includes on-board sensors capable of automatically performing diagnostics for maintenance and construction vehicles, and the systems that collect this diagnostic information and use it to schedule and manage vehicle maintenance.</p>	MC02	Maintenance and Construction Vehicle Maintenance	<p>This marketservice package performs vehicle maintenance scheduling and manages both routine and corrective maintenance activities on vehicles and other maintenance and construction equipment. It includes on-board sensors capable of automatically performing diagnostics for maintenance and construction vehicles, and the systems that collect this diagnostic information and use it to schedule and manage vehicle maintenance.</p>
MC03	Road Weather Data Collection	<p>This market package collects current road and weather conditions using data collected from environmental sensors deployed on and about the roadway (or guideway in the case of transit related rail systems). In addition to fixed sensor stations at the roadside, sensing of the roadway environment can also occur from sensor systems located on Maintenance and Construction Vehicles. The collected environmental data is used by the Weather Information Processing and Distribution Market Package to process the information and make decisions on operations. The collected environmental data may be aggregated, combined with data attributes and sent to meteorological systems for data qualification and further data consolidation. The market package may also request and receive qualified data sets from meteorological systems.</p>	MC03	Road Weather Data Collection	<p>This marketservice package collects current road and weather conditions using data collected from environmental sensors deployed on and about the roadway (or guideway in the case of transit related rail systems). In addition to fixed sensor stations at the roadside, sensing of the roadway environment can also occur from sensor systems located on Maintenance and Construction Vehicles. The collected environmental data is used by the Weather Information Processing and Distribution Market Packagesservice package to process the information and make decisions on operations. The collected environmental data may be aggregated, combined with data attributes and sent to meteorological systems for data qualification and further data consolidation. The marketservice package may also request and receive qualified data sets from meteorological systems.</p>

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
MC04	Weather Information Processing and Distribution	This market package processes and distributes the environmental information collected from the Road Weather Data Collection market package. This market package uses the environmental data to detect environmental hazards such as icy road conditions, high winds, dense fog, etc. so system operators and decision support systems can make decision on corrective actions to take. The continuing updates of road condition information and current temperatures can be used by system operators to more effectively deploy road maintenance resources, issue general traveler advisories, issue location specific warnings to drivers using the Traffic Information Dissemination market package, and aid operators in scheduling work activity.	MC04	Weather Information Processing and Distribution	This marketservice package processes and distributes the environmental information collected from the Road Weather Data Collection marketservice package. This marketservice package uses the environmental data to detect environmental hazards such as icy road conditions, high winds, dense fog, etc. so system operators and decision support systems can make decision on corrective actions to take. The continuing updates of road condition information and current temperatures can be used by system operators to more effectively deploy road maintenance resources, issue general travelertraveller advisories, issue location specific warnings to drivers using the Traffic Information Dissemination marketservice package, and aid operators in scheduling work activity.
MC05	Roadway Automated Treatment	This market package automatically treats a roadway section based on environmental or atmospheric conditions. Treatments include fog dispersion, anti-icing chemicals, etc. The market package includes the environmental sensors that detect adverse conditions, the automated treatment system itself, and driver information systems (e.g., dynamic message signs) that warn drivers when the treatment system is activated.	MC05	Roadway Automated Treatment	This marketservice package automatically treats a roadway section based on environmental or atmospheric conditions. Treatments include fog dispersion, anti-icing chemicals, etc. The marketservice package includes the environmental sensors that detect adverse conditions, the automated treatment system itself, and driver information systems (e.g., dynamic message signs) that warn drivers when the treatment system is activated.
MC06	Winter Maintenance	This market package supports winter road maintenance including snow plow operations, roadway treatments (e.g., salt spraying and other anti-icing material applications), and other snow and ice control activities. This package monitors environmental conditions and weather forecasts and uses the information to schedule winter maintenance activities, determine the appropriate snow and ice control response, and track and manage response operations.	MC06	Winter Maintenance	This marketservice package supports winter road maintenance including snow plow operations, roadway treatments (e.g., salt spraying and other anti-icing material applications), and other snow and ice control activities. This package monitors environmental conditions and weather forecasts and uses the information to schedule winter maintenance activities, determine the appropriate snow and ice control response, and track and manage response operations.
MC07	Roadway Maintenance and Construction	This market package supports numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services would include landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment on the roadway (e.g., signs, traffic controllers, traffic detectors, dynamic message signs, traffic signals, CCTV, etc.). Environmental conditions information is also received from various weather sources to aid in scheduling maintenance and construction activities.	MC07	Roadway Maintenance and Construction	This marketservice package supports numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services would include landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment on the roadway (e.g., signs, traffic controllers, traffic detectors, dynamic message signs, traffic signals, CCTV, etc.). Environmental conditions information is also received from various weather sources to aid in scheduling maintenance and construction activities.
MC08	Work Zone Management	This market package manages work zones, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway. Traffic conditions are monitored using CCTV cameras and controlled using dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers. Work zone information is coordinated with other groups (e.g., ISP, traffic management, other maintenance and construction centers). Work zone speeds and delays are provided to the motorist prior to the work zones. This market package provides control of field equipment in all maintenance and construction areas, including fixed, portable, and truck-mounted devices supporting both stationary and mobile work zones.	MC08	Work Zone Management	This marketservice package manages work zones, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway. Traffic conditions are monitored using CCTV cameras and controlled using dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers. Work zone information is coordinated with other groups (e.g., ISP, traffic management, other maintenance and construction centerscentres). Work zone speeds and delays are provided to the motorist prior to the work zones. This marketservice package provides control of field equipment in all maintenance and construction areas, including fixed, portable, and truck-mounted devices supporting both stationary and mobile work zones.
MC09	Work Zone Safety Monitoring	This market package includes systems that improve work crew safety and reduce collisions between the motoring public and maintenance and construction vehicles. This market package detects vehicle intrusions in work zones and warns crew workers and drivers of imminent encroachment or other potential safety hazards. Crew movements are also monitored so that the crew can be warned of movement beyond the designated safe zone. The market package supports both stationary and mobile work zones. The intrusion detection and alarm systems may be collocated or distributed, allowing systems that detect safety issues far upstream from a work zone (e.g., detection of over dimension vehicles before they enter the work zone).	MC09	Work Zone Safety Monitoring	This marketservice package includes systems that improve work crew safety and reduce collisions between the motoring public and maintenance and construction vehicles. This marketservice package detects vehicle intrusions in work zones and warns crew workers and drivers of imminent encroachment or other potential safety hazards. Crew movements are also monitored so that the crew can be warned of movement beyond the designated safe zone. The marketservice package supports both stationary and mobile work zones. The intrusion detection and alarm systems may be collocated or distributed, allowing systems that detect safety issues far upstream from a work zone (e.g., detection of over dimension vehicles before they enter the work zone).
MC10	Maintenance and Construction Activity Coordination	This market package supports the dissemination of maintenance and construction activity to centers that can utilize it as part of their operations, or to the Information Service Providers who can provide the information to travelers.	MC10	Maintenance and Construction Activity Coordination	This marketservice package supports the dissemination of maintenance and construction activity to centerscentres that can utilize it as part of their operations, or to the Information Service Providers who can provide the information to travelerstravellers .

Appendix C1 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Service Packages

US_V6 Acr	US_V6 Name	US_V6 Description	C_V2 Acr	C_V2 Name	C_V2 Description
MC11	Environmental Probe Surveillance	This market package collects data from vehicles in the road network that can be used to directly measure or infer current environmental conditions. It leverages vehicle on-board systems that measure temperature, sense current weather conditions (rain and sun sensors) and also can monitor aspects of the vehicle operational status (e.g., use of headlights, wipers, and traction control system) to gather information about local environmental conditions. It includes the on-board vehicle systems that collect and report environmental probe data, the infrastructure equipment that collects the probe data and the centers that aggregate and share the collected probe data.	MC11	Environmental Probe Surveillance	This market service package collects data from vehicles in the road network that can be used to directly measure or infer current environmental conditions. It leverages vehicle on-board systems that measure temperature, sense current weather conditions (rain and sun sensors) and also can monitor aspects of the vehicle operational status (e.g., use of headlights, wipers, and traction control system) to gather information about local environmental conditions. It includes the on-board vehicle systems that collect and report environmental probe data, the infrastructure equipment that collects the probe data and the centers centres that aggregate and share the collected probe data.
MC12	Infrastructure Monitoring	This market package monitors the condition of pavement, bridges, tunnels, associated hardware, and other transportation-related infrastructure (e.g., culverts) using both fixed and vehicle-based infrastructure monitoring sensors. Fixed sensors monitor vibration, stress, temperature, continuity, and other parameters and mobile sensors and data logging devices collect information on current infrastructure condition. This market package also monitors vehicle probes for vertical acceleration data and other probe data that may be used to determine current pavement condition.	MC12	Infrastructure Monitoring	This market service package monitors the condition of pavement, bridges, tunnels, associated hardware, and other transportation-related infrastructure (e.g., culverts) using both fixed and vehicle-based infrastructure monitoring sensors. Fixed sensors monitor vibration, stress, temperature, continuity, and other parameters and mobile sensors and data logging devices collect information on current infrastructure condition. This market service package also monitors vehicle probes for vertical acceleration data and other probe data that may be used to determine current pavement condition.

APPENDIX

C-2 *PHYSICAL OBJECT TEXT COMPARISON*

Appendix C2 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Physical Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Alerting and Advisory Systems	<p>This terminator 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.</p> <p>This terminator 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.</p> <p>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.</p> <p>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.</p>	Alerting and Advisory Systems	<p>This terminator represents the federal, state<u>provincial</u>, 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.</p> <p>This terminator also represents the early warning and emergency alert systems operated by federal, <u>state</u>provincial, 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.</p> <p>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.</p> <p>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. may also be provided the National Meteorological Service and Meteorological Service Provider terminators.</p>
Archived Data Administrator	<p>This terminator represents the human operator who provides overall data management, administration, and monitoring duties for the ITS data archive. Unlike the manager of the operational databases, the archive data administrator's role is focused on the archive and covers areas such as establishing user authentication controls, monitoring data quality, and initiating data import requests.</p>	Archived Data Administrator	<p>This terminator represents the human operator who provides overall data management, administration, and monitoring duties for the ITS data archive. Unlike the manager of the operational databases, the archive data administrator's role is focused on the archive and covers areas such as establishing user authentication controls, monitoring data quality, and initiating data import requests.</p>
Archived Data Management Subsystem	<p>The Archived Data Management Subsystem 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 subsystem 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 subsystem prepares data products that can serve as inputs to federal, state, and local data reporting systems. This subsystem may be implemented in many different ways. It 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 for a region.</p>	Archived Data Management Subsystem	<p>The Archived Data Management Subsystem 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 subsystem 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 subsystem prepares data products that can serve as inputs to federal, state<u>Federal, Provincial</u>, and local data reporting systems. This subsystem may be implemented in many different ways. It may reside within an operational center<u>centre</u> and provide focused access to a particular agency's data archives. Alternatively, it may operate as a distinct center<u>centre</u> that collects data from multiple agencies and sources and provides a general data warehouse service for a region.</p>
Archived Data User Systems	<p>This terminator represents the systems users employ to access archived data. The general interface provided from this terminator 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.</p>	Archived Data User Systems	<p>This terminator represents the systems users employ to access archived data. The general interface provided from this terminator 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.</p>
Asset Management	<p>This terminator 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.</p>	Asset Management	<p>This terminator 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.</p>

Appendix C2 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Physical Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Basic Commercial Vehicle	This terminator represents the motorized commercial vehicle platform that interfaces with and hosts ITS electronics. This terminator represents a vehicle that is used to transport goods which are operated by professional drivers, typically administered as part of a larger fleet, and regulated by a Fleet-Freight Manager. This classification applies to all such vehicles ranging from small panel vans used in local pick-up and delivery services to large, multi-axle tractor-trailer rigs operating on long haul routes.	Basic Commercial Vehicle	This terminator represents the motorized commercial vehicle platform that interfaces with and hosts ITS electronics. This terminator represents a vehicle that is used to transport goods which are operated by professional drivers, typically administered as part of a larger fleet, and regulated by a Fleet-Freight Manager. This classification applies to all such vehicles ranging from small panel vans used in local pick-up and delivery services to large, multi-axle tractor-trailer rigs operating on long haul routes.
Basic Maintenance and Construction Vehicle	This terminator represents a specialized form of the Basic Vehicle used by maintenance fleets. It supports the on-board equipment that control the non-ITS systems such as the actual operation of the snow plow, as well as any non-ITS sensor equipment that monitors the amount of materials (e.g., sand or salt) on-board. The monitoring of the Basic Maintenance and Construction Vehicle mechanical condition and mileage provides the major inputs for maintenance vehicle activity scheduling.	Basic Maintenance and Construction Vehicle	This terminator represents a specialized form of the Basic Vehicle used by maintenance fleets. It supports the on-board equipment that control the non-ITS systems such as the actual operation of the snow plow, as well as any non-ITS sensor equipment that monitors the amount of materials (e.g., sand or salt) on-board. The monitoring of the Basic Maintenance and Construction Vehicle mechanical condition and mileage provides the major inputs for maintenance vehicle activity scheduling.
Basic Transit Vehicle	This terminator represents a specialized form of the Basic Vehicle that interfaces with and hosts ITS electronics. The Basic Transit Vehicle may be a bus, paratransit vehicle, light rail vehicle, or other vehicle designed to carry passengers. The Basic Transit Vehicle includes the non-ITS on-board systems (e.g., engine, brakes, drive train, odometer). The monitoring of the Basic Transit Vehicle mechanical condition and mileage provides the major inputs for vehicle maintenance activity scheduling. The Basic Transit Vehicle can also accept disable commands resulting from a remote vehicle disable command or from a failure of the vehicle operator to be properly authenticated.	Basic Transit Vehicle	This terminator represents a specialized form of the Basic Vehicle that interfaces with and hosts ITS electronics. The Basic Transit Vehicle may be a bus, paratransit vehicle, light rail vehicle, or other vehicle designed to carry passengers. The Basic Transit Vehicle includes the non-ITS on-board systems (e.g., engine, brakes, drive train, odometer). The monitoring of the Basic Transit Vehicle mechanical condition and mileage provides the major inputs for vehicle maintenance activity scheduling. The Basic Transit Vehicle can also accept disable commands resulting from a remote vehicle disable command or from a failure of the vehicle operator to be properly authenticated.
Basic Vehicle	This terminator represents the basic vehicle platform that interfaces with and hosts ITS electronics. The Basic Vehicle terminator provides an interface to drive train, driver convenience and entertainment systems, and other non-ITS electronics on-board the vehicle. This interface allows general vehicle systems (e.g., the stereo speaker system) to be shared by ITS and non-ITS systems. It also allows monitoring and control of the vehicle platform for advanced vehicle control system applications.	Basic Vehicle	This terminator represents the basic vehicle platform that interfaces with and hosts ITS electronics. The Basic Vehicle terminator provides an interface to drive train, driver convenience and entertainment systems, and other non-ITS electronics on-board the vehicle. This interface allows general vehicle systems (e.g., the stereo speaker system) to be shared by ITS and non-ITS systems. It also allows monitoring and control of the vehicle platform for advanced vehicle control system applications.
Border Inspection Administration	This terminator represents back-office systems and databases run by U.S. 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. Data is collected and disseminated to other government systems and users. 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.	Border Inspection Administration	This terminator The Border Inspection Administration Subsystem represents back-office systems and databases run by U.S. domestic Canadian and foreign U.S. 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 Canadian Border Services Agency (CBSA) and U.S. Customs and Border Protection (CBP) and the U.S. Department of Homeland Security (DHS), as well as other related agencies for immigration, agriculture, security and enforcement. The systems they manage coordinate activities related to the border crossings. Data is collected and disseminated to other government systems and users. These systems support import/export cargo processing and enforcement operations at the border, including programs such as Free and Secure Trade (FAST) , Automated Commercial Environment (ACE), Nexus (Canada), SENTRI (Mexico) , and US-VISIT.
Border Inspection Systems	This terminator represents data systems used at the border for the inspection of people or goods. Supports immigration, customs (trade), agricultural, and FDA inspections as applicable. Includes sensors and surveillance systems to identify and classify drivers and their cargo as it approaches a border crossing, the systems used to interface with the back-office administration systems and provide information on status of the crossing or events to other agency systems.	Border Inspection Systems	This terminator The Border Inspection Systems Subsystem represents data systems used at the border for the inspection of people or goods. Supports immigration, customs (trade), agricultural, and FDA Health Canada inspections as applicable. Includes sensors and surveillance systems to identify and classify drivers and their cargo as it approaches a border crossing, the systems used to interface with the back-office administration systems and provide information on status of the crossing or events to other agency systems.
Care Facility	This terminator represents a hospital or another emergency care facility. It may also represent a third party quality of care information provider.	Care Facility	This terminator represents a hospital or another hospitals, trauma centres, field emergency treatment facilities and any other location capable of receiving injured persons and providing emergency care facility. It may also represent a third party quality of care information provider.

Appendix C2 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Physical Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Commercial Vehicle Administration	The Commercial Vehicle Administration Subsystem will operate at one or more fixed locations within a region. This subsystem performs administrative functions supporting credentials, tax, and safety regulations. It issues credentials, collects fees and taxes, and supports enforcement of credential requirements. This subsystem communicates with the Fleet Management Subsystems associated with the motor carriers to process credentials applications and collect fuel taxes, weight/distance taxes, and other taxes and fees associated with commercial vehicle operations. The subsystem also receives applications for, and issues special Oversize/Overweight and HAZMAT permits in coordination with other cognizant authorities. The subsystem coordinates with other Commercial Vehicle Administration Subsystems (in other states/regions) to support nationwide access to credentials and safety information for administration and enforcement functions. This subsystem supports communications with Commercial Vehicle Check Subsystems operating at the roadside to enable credential checking and safety information collection. The collected safety information is processed, stored, and made available to qualified stakeholders to identify carriers and drivers that operate unsafely.	Commercial Vehicle Administration	The Commercial Vehicle Administration Subsystem will operate at one or more fixed locations within a region. This subsystem performs administrative functions supporting credentials, tax, and safety regulations. for both interprovince and international movement of commercial vehicles and their cargo. It issues credentials, collects fees and taxes, and supports enforcement of credential requirements. This subsystem communicates with the Fleet Management Subsystems associated with the motor carriers to process credentials applications and collect fuel taxes, weight/distance taxes, and other taxes and fees associated with commercial vehicle operations. The subsystem also receives applications for, and issues special Oversize/Overweight and HAZMAT permits in coordination with other cognizant authorities. The subsystem coordinates with other Commercial Vehicle Administration Subsystems (in other states/provinces /regions/countries) to support nationwide access to credentials and safety information for administration and enforcement functions. This subsystem supports communications with Commercial Vehicle Check Subsystems operating at the roadside to enable credential checking and safety information collection. The collected safety information is processed, stored, and made available to qualified stakeholders to identify carriers and drivers that operate unsafely.
Commercial Vehicle Check	The Commercial Vehicle Check Subsystem 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. The Commercial Vehicle Check Subsystem also provides supplemental inspection services to current capabilities by supporting 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.	Commercial Vehicle Check	The Commercial Vehicle Check Subsystem supports automated vehicle identification at mainline speeds for credential checking, international border clearance, 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. The Commercial Vehicle Check Subsystem also provides supplemental inspection services to current capabilities by supporting 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.
Commercial Vehicle Driver	This terminator represents the human entity that operates vehicles transporting goods including both long haul trucks and local pick up and delivery vans. This terminator is complementary to the Driver terminator in that it represents those interactions which are unique to Commercial Vehicle Operations. Data flowing from the Commercial Vehicle Driver terminator will include those system inputs specific to Commercial Vehicle Operations, such as information back to the Fleet-Freight Manager. Data flowing to the Commercial Vehicle Driver may include system outputs such as commands to pull into a roadside safety inspection facility. Showing the Driver as a terminator includes the user interface devices within the ITS architecture boundary. The Commercial Vehicle Driver will be expected to interact with the ITS interface devices designed to provide support for their usage.	Commercial Vehicle Driver	This terminator represents the human entity that operates vehicles transporting goods including both long haul trucks and local pick up and delivery vans. This terminator is complementary to the Driver terminator in that it represents those interactions which are unique to Commercial Vehicle Operations. Data flowing from the Commercial Vehicle Driver terminator will include those system inputs specific to Commercial Vehicle Operations, such as information back to the Fleet-Freight Manager. Data flowing to the Commercial Vehicle Driver may include system outputs such as commands to pull into a roadside safety inspection facility. Showing the Driver as a terminator includes the user interface devices within the ITS architecture boundary. The Commercial Vehicle Driver will be expected to interact with the ITS interface devices designed to provide support for their usage.
Commercial Vehicle Subsystem	This subsystem resides in a commercial vehicle and provides the sensory, processing, storage, and communications functions necessary to support safe and efficient commercial vehicle operations. The Commercial Vehicle Subsystem provides two-way communications between the commercial vehicle drivers, their fleet managers, attached freight equipment, and roadside officials, and provides HAZMAT response teams with timely and accurate cargo contents information after a vehicle incident. This subsystem provides the capability to collect and process vehicle, cargo information from the attached freight equipment, and driver safety data and status and alert the driver whenever there is a potential safety or security problem. Basic identification, security and safety status data are supplied to inspection facilities at mainline speeds. In addition, the subsystem will automatically collect and record mileage, fuel usage, and border crossings.	Commercial Vehicle Subsystem	This subsystem resides in a commercial vehicle and provides the sensory, processing, storage, and communications functions necessary to support safe and efficient commercial vehicle operations. The Commercial Vehicle Subsystem provides two-way communications between the commercial vehicle drivers, their fleet managers, attached freight equipment, and roadside officials, and provides HAZMAT response teams with timely and accurate cargo contents information after a vehicle incident. This subsystem provides the capability to collect and process vehicle, cargo information from the attached freight equipment, and driver safety data and status and alert the driver whenever there is a potential safety or security problem. Basic identification, security and safety status data are supplied to inspection facilities at mainline speeds. In addition, the subsystem will automatically collect and record mileage, fuel usage, and border crossings.
CVO Information Requestor	This terminator 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.	CVO Information Requestor	This terminator represents any organization or individual requesting CVO 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.
CVO Inspector	This terminator represents the human entities who perform regulatory inspection of Commercial Vehicles in the field. CVO Inspectors support the roadside inspection, weighing, and checking of credentials either through automated preclearance or manual methods. The CVO Inspector is an inspection and enforcement arm of the regulatory agencies with frequent direct interface with the Commercial Vehicles and their Drivers.	CVO Inspector	This terminator represents the human entities who perform regulatory inspection of Commercial Vehicles in the field. CVO Inspectors support the roadside inspection, weighing, and checking of credentials either through automated preclearance or manual methods. The CVO Inspector is an inspection and enforcement arm of the regulatory agencies with frequent direct interface with the Commercial Vehicles and their Drivers.
DMV	This terminator represents a specific (state) public organization responsible for registering vehicles, e.g., the Department of Motor Vehicles.	DMV Department of Motor Vehicles	This terminator represents a specific (state provincial) public organization responsible for registering vehicles, e.g., the Department Ministry of Motor Vehicles Transportation.

Appendix C2 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Physical Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Driver	<p>This terminator represents the human entity that operates a licensed vehicle on the roadway. Included are operators of private, Transit, Commercial, and Emergency vehicles where the data being sent or received is not particular to the type of vehicle. Thus this terminator originates driver requests and receives driver information that reflects the interactions which might be useful to all drivers, regardless of vehicle classification. The Driver terminator is the operator of the Basic Vehicle terminator. Information and interactions which are unique to drivers of a specific vehicle type (e.g., fleet interactions with transit, commercial, or emergency vehicle drivers) are covered separately.</p>	Driver	<p>This terminator represents the human entity that operates a licensed vehicle on the roadway. Included are operators of private, Transit, Commercial, and <u>Maintenance</u>, Emergency and other vehicles where the data being sent or received is not particular to the type of vehicle. Thus this terminator originates driver requests and receives driver information that reflects the interactions which might be useful to all drivers, regardless of vehicle classification. The Driver terminator is the operator of the Basic Vehicle terminator. Information and interactions which are unique to drivers of a specific vehicle type (e.g., fleet interactions with transit, commercial, <u>maintenance</u>, or emergency vehicle drivers) are covered separately. <u>This general description of the person who operates a vehicle could apply even to motorcycle or bicycle "operators"</u>.</p>
Driver Identification Card	<p>This terminator represents the portable entity (e.g., a smart card) that enables the transfer of electronic identification information about 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).</p>	Driver Identification Card	<p>This terminator represents the portable entity (e.g., a smart card) that enables the transfer of electronic identification information about 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).</p>
Emergency Management	<p>The Emergency Management Subsystem represents public safety, emergency management, and other allied agency systems that support incident management, disaster response and evacuation, security monitoring, and other security and public safety-oriented ITS applications. The subsystem 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 subsystem also represents other allied systems including centers associated with towing and recovery, freeway service patrols, HAZMAT response teams, and mayday service providers.</p> <p>The subsystem 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). The subsystem provides security/surveillance services to improve traveler security in public areas not a part of the public transportation system.</p> <p>This subsystem monitors alerts, advisories, and other threat information and prepares for and responds to identified emergencies. It interfaces with other Emergency Management Subsystems to support coordinated emergency response involving multiple agencies. The subsystem stores, coordinates, and utilizes emergency response and evacuation plans to facilitate this coordinated response. As the response progresses, situation information including damage assessments, response status, evacuation information, and resource information are shared to keep all allied agencies appraised of the response. Interface with the Transit Management Subsystem allows coordinated use of transit vehicles to facilitate response to major emergencies and to support evacuation efforts. The Emergency Management Subsystem 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.</p> <p>The subsystem tracks and manages emergency vehicle fleets using real-time road network status and routing information from the other center subsystems to aide in selecting the emergency vehicle(s) and routes that will provide the most timely response. Interface with the Traffic Management Subsystem allows strategic coordination in tailoring 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.</p>	Emergency Management	<p>The Emergency Management Subsystem represents <u>operates in various emergency centres supporting public safety, emergency management, including police, fire and other allied agency systems that support incident management, disaster emergency medical service stations, search and rescue special detachments, HAZMAT response and evacuation, security monitoring teams, and other security and public safety oriented ITS applications.</u> service patrols. The subsystem 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. <u>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 subsystem also represents other allied systems including centers associated with towing and recovery, freeway service patrols, HAZMAT response teams, and mayday service providers.</u></p> <p>The subsystem 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). The subsystem provides security/surveillance services to improve traveler security in public areas not a part of the public transportation system.</p> <p>centres at local, regional, state, and federal levels. This subsystem monitors alerts, advisories, and other threat information and prepares for and responds to identified emergencies. It interfaces with other Emergency Management Subsystems to support coordinated emergency response involving multiple agencies. The subsystem <u>creates</u>, stores, coordinates, and utilizes emergency response and evacuation plans to facilitate <u>this coordinated response.</u> As the response progresses, situation information including damage assessments, response status, evacuation information, and resource information are shared to keep all allied agencies appraised of the response <u>coordinated response with other Emergency Management Subsystems.</u> Interface with the Transit Management Subsystem allows coordinated use of transit vehicles to facilitate response to major emergencies and to support evacuation efforts. The Emergency Management Subsystem 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.</p> <p>The subsystem tracks and manages emergency vehicle fleets using real time road network status and routing information from the other center subsystems to aide in selecting the emergency vehicle(s) and routes that will provide the most timely response. Interface with the Traffic Management Subsystem <u>provides real-time input for emergency vehicle response selection and routing and allows for</u> strategic coordination in tailoring traffic control to support emergency vehicle ingress and egress, implementation of special traffic restrictions and closures, evacuation traffic control plans, and other special strategies <u>that adapt the transportation system to better meet the unique demands of an emergency.</u></p>

Appendix C2 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Physical Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Emergency Personnel	This terminator represents personnel that are responsible for police, fire, emergency medical services, towing, service patrols, and other special response team (e.g., hazardous material clean-up) activities at an incident site. These personnel are associated with the Emergency Vehicle Subsystem during dispatch to the incident site, but often work independently of the Emergency Vehicle Subsystem while providing their incident response services. Emergency personnel may include an Officer in Charge (OIC) and a crew. When managing an incident following standard Incident Command System practices, the on-site emergency personnel form an organizational structure under the auspices of an Incident Commander.	Emergency Personnel	This terminator represents personnel that are responsible for police, fire, emergency medical services, towing, service patrols, and other special response team (e.g., hazardous material clean-up) activities at an incident site. These personnel are associated with the Emergency Vehicle Subsystem during dispatch to the incident site, but often work independently of the Emergency Vehicle Subsystem while providing their incident response services. Emergency personnel may include an Officer in Charge (OIC) and a crew. When managing an incident following standard Incident Command System practices, the on-site emergency personnel form an organizational structure under the auspices of an Incident Commander.
Emergency System Operator	This terminator represents the human entity that monitors all ITS emergency requests, (including those from the E911 Operator) and sets up pre-defined responses to be executed by an emergency management system. The operator may also override predefined responses where it is observed that they are not achieving the desired result. This terminator includes dispatchers who manage an emergency fleet (police, fire, ambulance, HAZMAT, etc.) or higher order emergency managers who provide response coordination during emergencies.	Emergency System Operator	This terminator represents the human entity that monitors all ITS emergency requests, (including those from the E911 Operator) and sets up pre-defined responses to be executed by an emergency management system. The operator may also override predefined responses where it is observed that they are not achieving the desired result. This terminator includes dispatchers who manage an emergency fleet (police, fire, ambulance, HAZMAT, etc.) or higher order emergency managers who provide response coordination during emergencies.
Emergency Telecommunications System	This terminator 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.	Emergency Telecommunications System	This terminator 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.
Emergency Vehicle Subsystem	This subsystem resides in an emergency vehicle and provides the sensory, processing, storage, and communications functions necessary to support safe and efficient incident response. The subsystem represents a range of vehicles including those operated by police, fire, and emergency medical services. In addition, this subsystem represents other incident response vehicles including towing and recovery vehicles and freeway service patrols. The Emergency Vehicle Subsystem includes two-way communications to support coordinated response to emergencies in accordance with an associated Emergency Management Subsystem. Emergency vehicles are equipped with automated vehicle location capability for monitoring by vehicle tracking and fleet management functions in the Emergency Management Subsystem. Using these capabilities, the appropriate emergency vehicle to respond to each emergency is determined. Route guidance capabilities within the vehicle enable safe and efficient routing to the emergency. In addition, the emergency vehicle may be equipped to support signal preemption through communications with the Roadway Subsystem.	Emergency Vehicle Subsystem	This subsystem resides in an emergency vehicle and provides the sensory, processing, storage, and communications functions necessary to support safe and efficient incident response. The subsystem represents a range of vehicles including those operated by police, fire, and emergency medical services. In addition, this subsystem represents other incident response vehicles including towing and recovery vehicles and freeway service patrols. The Emergency Vehicle Subsystem includes two-way communications to support coordinated response to emergencies in accordance with an associated Emergency Management Subsystem. Emergency vehicles are equipped with automated vehicle location capability for monitoring by vehicle tracking and fleet management functions in the Emergency Management Subsystem. Using these capabilities, the appropriate emergency vehicle to respond to each emergency is determined. Route guidance capabilities within the vehicle enable safe and efficient routing to the emergency. In addition, the emergency vehicle may be equipped to support signal preemption through communications with the Roadway Subsystem.
Emissions Management	This subsystem operates at a fixed location and may co-reside with the Traffic Management Subsystem or may operate in its own distinct location depending on regional preferences and priorities. This subsystem provides the capabilities for air quality managers to monitor and manage air quality. These capabilities include collecting emissions data from distributed emissions sensors within the roadway subsystem. These sensors monitor general air quality within each sector of the area and also monitor the emissions of individual vehicles on the roadway. The sector emissions measures are collected, processed, and used to identify sectors exceeding safe pollution levels. This information is provided to traffic management to implement strategies intended to reduce emissions in and around the problem areas. Emissions data associated with individual vehicles, supplied by the Roadway Subsystem, is also processed and monitored to identify vehicles that exceed standards. This subsystem provides any functions necessary to inform the violators and otherwise ensure timely compliance with emissions standards.	Emissions Management	This subsystem operates at a fixed location and may co-reside with the Traffic Management Subsystem or may operate in its own distinct location depending on regional preferences and priorities. This subsystem provides the capabilities for air quality managers to monitor and manage air quality. These capabilities include collecting emissions data from distributed emissions sensors within the roadway subsystem. These sensors monitor general air quality within each sector of the area and also monitor the emissions of individual vehicles on the roadway. The sector emissions measures are collected, processed, and used to identify sectors exceeding safe pollution levels. This information is provided to traffic management to implement strategies intended to reduce emissions in and around the problem areas. Emissions data associated with individual vehicles, supplied by the Roadway Subsystem, is also processed and monitored to identify vehicles that exceed standards. This subsystem provides any functions necessary to inform the violators and otherwise ensure timely compliance with emissions standards.
Emissions Management Operator	This terminator represents personnel that monitor, operate, and manage emissions monitoring and management systems. These personnel monitor system operation and monitor collected emissions and air quality information and direct system operation through data and command inputs.	Emissions Management Operator	This terminator represents personnel that monitor, operate, and manage emissions monitoring and management systems. These personnel monitor system operation and monitor collected emissions and air quality information and direct system operation through data and command inputs.
Enforcement Agency	This terminator represents the systems that receive reports of violations detected by various ITS facilities including individual vehicle emissions, toll violations, CVO violations, excessive speed in work zones, etc.	Enforcement Agency	This terminator represents the systems that receive reports of violations detected by various ITS facilities including individual vehicle emissions, toll violations, CVO violations, excessive speed in work zones, ete-speed or red light running violation, etc.
Environment	This terminator represents the natural surroundings in which the ITS operates. These surroundings include conditions such as snow, rain, fog, pollution, dust, temperature, humidity, solar radiation, and man made electromagnetic (RF) effects. Environmental conditions must be monitored by the ITS Architecture so that Travelers may be informed and control strategies can reflect adverse environmental conditions in a timely fashion.	Environment	This terminator represents the natural surroundings in which the ITS operates. These surroundings include conditions such as snow, rain, fog, pollution, dust, temperature, humidity, solar radiation, and man made electromagnetic (RF) effects- <u>and environmental hazards (flooding, landslides, and mudslides).</u> Environmental conditions must be monitored by the ITS Architecture so that Travelers <u>Travellers</u> may be informed and control strategies can reflect adverse environmental conditions in a timely fashion.

Appendix C2 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Physical Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Equipment Repair Facility	This terminator represents the facilities that configure, service, and repair vehicles and other support equipment used in roadway infrastructure construction and maintenance. The equipment repair facility receives preventative and corrective maintenance schedules and vehicle configuration requirements, performs the necessary configuration and maintenance work on the vehicles and equipment, and provides vehicle and equipment status back to the architecture.	Equipment Repair Facility	This terminator represents the facilities that configure, service, and repair vehicles and other support equipment used in roadway infrastructure construction and maintenance. The equipment repair facility receives preventative and corrective maintenance schedules and vehicle configuration requirements, performs the necessary configuration and maintenance work on the vehicles and equipment, and provides vehicle and equipment status back to the architecture.
Event Promoters	This terminator represents Special Event Sponsors that have knowledge of events that may impact travel on roadways or other modal means. Examples of special event sponsors include sporting events, conventions, motorcades/parades, and public/political events. These promoters interface to the ITS to provide event information such as date, time, estimated duration, location, and any other information pertinent to traffic movement in the surrounding area.	Event Promoters	This terminator represents Special Event Sponsors that have knowledge of events that may impact travel on roadways or other modal means. Examples of special event sponsors include sporting events, conventions, motorcades/parades, and public/political events. These promoters interface to the ITS to provide event information such as date, time, estimated duration, location, and any other information pertinent to traffic movement in the surrounding area.
Financial Institution	This terminator represents the organization that handles all 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 subsumed by this entity.	Financial Institution	This terminator represents the organization that handles all 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 subsumed by this entity.
Fleet and Freight Management	The Fleet and Freight Management Subsystem provides the capability for commercial drivers and fleet or 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. In addition, the capability to purchase credentials electronically shall also be provided, with automated and efficient connections to financial institutions and regulatory agencies, along with post-trip automated mileage and fuel usage reporting. The Fleet and Freight Management Subsystem also provides the capability for fleet managers to monitor the safety and security of their commercial vehicle drivers and fleet. The subsystem also supports application for hazmat credentials and makes information about hazmat cargo available to agencies as required. Within this subsystem lies all the functionality associated with subsystems and components necessary to enroll and participate in international goods movement programs aimed at enhancing trade and transportation safety and security.	Fleet and Freight Management	The Fleet and Freight Management Subsystem provides the capability for commercial drivers and fleet or freight managers to receive real-time routing information and access databases containing vehicle and/or freight equipment <u>and cargo</u> locations as well as carrier, vehicle, freight equipment, <u>cargo</u> and driver information. In addition, the capability to purchase credentials electronically shall also be provided, with automated and efficient connections to financial institutions and regulatory agencies, along with post-trip automated mileage and fuel usage reporting. The Fleet and Freight Management Subsystem also provides the capability for fleet <u>and freight</u> managers to monitor the safety and security of their commercial vehicle drivers, <u>fleet</u> and <u>fleet cargo</u> . The subsystem also supports application for hazmat <u>HAZMAT</u> credentials and makes information about hazmat <u>HAZMAT</u> cargo available to agencies as required. Within this subsystem lies all the functionality associated with subsystems and components necessary to enroll and participate in international goods movement programs aimed at enhancing trade and transportation safety and security. <u>The subsystem supports regulatory functions and the capability to manage intermodal shipment of cargo, including the dispatch and tracking of intermodal containers. The subsystem also supports an interface with the Intermodal Terminal Subsystem for container pickup, delivery, and status. In addition, the subsystem can interface with a Distribution and Logistics Management Provider, who can provide an outsourced management and tracking of intermodal containers. Other intermodal capabilities include interfacing with the Freight Consolidation Station and with other Intermodal Fleet Management Subsystems for co-ordination of shipping between modes.</u>
Fleet-Freight Manager	This terminator represents the human entities that are responsible for the dispatching and management of Commercial Vehicle fleets (e.g. traditional Fleet Managers) and Freight Equipment assets. It may be many people in a large tracking organization but it can also be a single person (owner driver) in the case of single vehicle fleets. The Fleet-Freight Manager provides instructions and coordination for Commercial Vehicles and Freight Equipment, including electronic clearance and tax filing, and receives the status of the vehicles and freight equipment in the fleet that they manage. The Fleet-Freight Manager is expected to interface with ITS on a regular basis to enhance productivity. Many interfaces with the system are also provided through normal user interfaces.	Fleet-Freight Manager	This terminator represents the human entities that are responsible for the dispatching and management of Commercial Vehicle fleets (e.g. traditional Fleet Managers) and Freight Equipment assets. It may be many people in a large tracking organization but it can also be a single person (owner driver) in the case of single vehicle fleets. The Fleet-Freight Manager provides instructions and coordination for Commercial Vehicles and Freight Equipment, including electronic clearance and tax filing, and receives the status of the vehicles and freight equipment in the fleet that they manage. The Fleet-Freight Manager is expected to interface with ITS on a regular basis to enhance productivity. Many interfaces with the system are also provided through normal user interfaces.

Appendix C2 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Physical Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Freight Equipment	This terminator represents a freight container, intermodal chassis or trailer and provides information to support safe, secure and efficient freight operations. This terminator provides equipment safety data and status and can alert the appropriate systems of an incident, breach, or tamper event. This terminator provides accurate position information to support in-transit visibility of freight equipment.	<u>Intermodal Freight Equipment</u>	This terminator represents a freight container, intermodal chassis or trailer and provides information to support safe, secure and efficient freight operations. This terminator provides equipment safety data and status and can alert the appropriate systems of an incident, breach, or tamper event. This terminator provides accurate position information to support in-transit visibility of freight equipment. <u>The Intermodal Freight Equipment subsystem includes the sensors and systems incorporated into an intermodal container and chassis. Containers are strengthened and stackable boxes that carry freight and allow horizontal and vertical transfers between modes (truck transport, rail, or marine vessel). They are built to standardized dimensions to allow efficient handling. The most basic capability of the Intermodal Container subsystem is to provide a unique identification via wireless interrogation. The chassis is the frame on wheels that an intermodal container is secured to for roadway transport by a truck. The subsystem can also have the capability to sense cargo conditions, including temperature, controlled atmosphere integrity, status of control systems (like refrigeration), peak and total shock/vibration, and any other aspects peculiar to the specific cargo, as well as chassis safety data for the brakes, container fasteners, and other systems. The subsystem can potentially support the determination of location and the communication of that location to appropriate infrastructure elements, either on demand or as part of a periodic status reporting activity. The subsystem also can support a number of security measures, including sensing and alarms for unauthorized breaches of the container seals, electronic locking devices suitable for Customs preclearance, and basic security measures to prevent unauthorized interrogation of the container's systems and stored data. The intermodal container subsystem must also function as an integrated unit with a chassis and the Commercial Vehicle subsystem for roadway transport. This would require the ability to interface via either wireless or wire harness means to the Commercial Vehicle subsystem to allow monitoring of the container's status as part of the composite vehicle.</u>
Government Reporting Systems	This terminator represents the system and associated personnel that prepare the inputs to support the various local, state, and federal government transportation data reporting requirements (e.g. Highway Performance Monitoring System, Fatality Analysis Reporting System) using data collected by ITS systems. This terminator represents a system interface that would provide access to the archived data that is relevant to these reports. In most cases, this terminator would manually combine data collected from the ITS archives with data from non ITS sources to assemble and submit the required information.	Government Reporting Systems	This terminator represents the system and associated personnel that prepare the inputs to support the various local, state <u>provincial</u> , and federal government transportation data reporting requirements (e.g. Highway Performance Monitoring System, Fatality Analysis Reporting System) using data collected by ITS systems. This terminator represents a system interface that would provide access to the archived data that is relevant to these reports. In most cases, this <u>This</u> terminator would manually combine data collected from the ITS archives with data from non ITS sources to assemble and submit the required information.
Information Service Provider	This subsystem collects, processes, stores, and disseminates transportation information to system operators and the traveling public. The subsystem can play several different roles in an integrated ITS. In one role, the ISP 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 ISPs. In this information redistribution role, the ISP provides a bridge between the various transportation systems that produce the information and the other ISPs and their subscribers that use the information. The second role of an ISP 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, ridematching information, and parking information. The subsystem also provides the capability to provide specific directions to travelers by receiving origin and destination requests from travelers, generating route plans, and returning the calculated plans to the users. In addition to general route planning for travelers, the ISP also supports specialized route planning for vehicle fleets. In this third role, the ISP function may be dedicated to, or even embedded within, the dispatch system. Reservation services are also provided in advanced implementations. The information is provided to the traveler through the Personal Information Access Subsystem, Remote Traveler Support Subsystem, and the Vehicle Subsystem through available communications links. Both basic one-way (broadcast) and personalized two-way information provision are supported. The ISP is most commonly implemented as an Internet web site, but it represents any traveler information distribution service including systems that broadcast digital transportation data (e.g., satellite radio networks) and systems that support distribution through Field-Vehicle Communications networks. The ISP accomplishes these roles using constantly evolving technologies like the Internet (World Wide Web pages), direct broadcast communications (email alerts, pagers, satellite radio network data broadcasts), communications through Field-Vehicle Communications networks, etc.	Information Service Provider	This subsystem collects, processes, stores, and disseminates transportation information to system operators and the traveling public. The subsystem can play several different roles in an integrated ITS. In one role, the ISP 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 ISPs. In this information redistribution role, the ISP provides a bridge between the various transportation systems that produce the information and the other ISPs and their subscribers that use the information. The second role of an ISP is focused on delivery of traveler <u>traveller</u> information to subscribers and the public at large. Information provided includes basic advisories, traffic and road conditions, transit schedule information, yellow pages <u>business directory</u> information, ridematching information, and parking information, and weather information. The subsystem also provides the capability to provide specific directions to traveler <u>travellers</u> by receiving origin and destination requests from traveler <u>travellers</u> , generating route plans, and returning the calculated plans to the users. In addition to general route planning for traveler <u>travellers</u> , the ISP also supports specialized route planning for vehicle fleets. In this third role, the ISP function may be dedicated to, or even embedded within, the dispatch system. Reservation services are also provided in advanced implementations. The information is provided to the traveler <u>traveller</u> through the Personal Information Access Subsystem, Remote Traveler <u>Traveller</u> Support Subsystem, and the Vehicle Subsystem through available communications links. Both basic one-way (broadcast) and personalized two-way information provision are supported. The ISP is most commonly implemented as an Internet web site, but it represents any traveler <u>traveller</u> information distribution service including systems that broadcast digital transportation data (e.g., satellite radio networks) and systems that support distribution through Field-Vehicle Communications <u>dedicated short range communications</u> networks. The ISP accomplishes these roles using constantly evolving technologies like the Internet (World Wide Web pages), direct broadcast communications (email alerts, pagers, satellite radio network data broadcasts), communications through Field-Vehicle Communications <u>dedicated short range communications</u> networks, etc.

Appendix C2 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Physical Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Intermodal Freight Depot	This terminator represents a depot operated either by a depot manager or an alternate mode freight shipper which represents the point of exchange where freight is moved from one mode to another. The depot has knowledge about activities that may impact travel on roadways such as large groups of trucks entering the highway after unloading a ship or freight train. The depot interfaces to the ITS to coordinate freight movement with Fleet-Freight Managers, gather information on traffic conditions affecting the depot, and to provide information on intermodal freight activities that is pertinent to traffic movement in the surrounding area.	Intermodal Freight Depot Terminal	This terminator represents a depot operated either by a depot manager or an alternate mode freight shipper which represents the point of exchange where freight is moved from one mode to another. The depot has knowledge about activities that may impact travel on roadways such as large groups of trucks entering the highway after unloading a ship or freight train. The depot interfaces to the ITS to coordinate freight movement with Fleet-Freight Managers, gather information on traffic conditions affecting the depot, and to provide information on intermodal freight activities that is pertinent to traffic movement in the surrounding area. The Intermodal Terminal subsystem represents the terminal areas corresponding to modal change points. This would include any interfaces between roadway freight transportation and air, rail, and/or water shipping modes. The basic unit of cargo handled by the Intermodal Terminal subsystem is the container; less-than-container load handling will typically be handled at a different facility (e.g. Freight Consolidation Station). The Intermodal Terminal subsystem is responsible for efficiently handling the movement of freight containers between transport modes. This can include electronic gate control for entrance and exit from the facility, automated guidance of vehicles within the facility, alerting appropriate parties of container arrivals and departures, and inventory and location of temporarily stored containers. The subsystem also provides support for customs agencies to perform their functions, where international cargo may be handled. The Intermodal Terminal subsystem may also implement weigh-in-motion and other commercial vehicle inspection capabilities to ensure that commercial vehicle – chassis – container assemblages that leave the facility are roadworthy. The Intermodal Terminal subsystem can support security functionality both to secure containers and to prevent unauthorised personnel or vehicles from violating the facilities.
Intermodal Freight Shipper	This terminator represents organizations that engage in the shipment of freight by multiple means, in addition to road-going trucks. They enable ITS to move goods on routes that require the use of other modes of transportation such as heavy rail, air, sea, etc. This terminator includes third party logistics providers (i.e. brokers, freight forwarders, etc) that interface with Fleet-Freight Managers to transfer cargo from one mode to another. This definition includes those responsible for the movement of freight across international borders. These entities are responsible for filing required declarations, and have an acute interest in the status of international shipments.	Intermodal Freight Shipper Customer	This terminator represents organizations that engage in the shipment of freight by multiple means, in addition to road-going trucks, either originator (consignor or shipper) or recipient of the cargo shipment. They enable ITS to move goods on routes that require the use of other modes of transportation such as heavy rail, air, sea, etc. This terminator includes third party logistics providers (i.e. brokers, freight forwarders, etc) that interface interfaces with Fleet-Freight Managers to transfer cargo from one mode to another. This definition includes those responsible for the movement of freight across international borders. These entities are responsible for filing required declarations, and have an acute interest in the status of international shipments.
ISP Operator	This terminator is the human entity that may be physically present at the ISP to monitor the operational status of the facility and provide human interface capabilities to travelers and other ISP subsystems.	ISP Operator	This terminator is the human entity that may be physically present at the ISP to monitor the operational status of the facility and provide human interface capabilities to travelers travellers and other ISP subsystems.
Location Data Source	This terminator provides accurate position information. Systems which use GPS, terrestrial trilateration, or driver inputs are all potential examples of Location Data Sources. This terminator contains sensors such as radio position receivers (e.g. GPS) and/or dead reckoning sensors (e.g. odometer, differential odometer, magnetic compass, gyro, etc.). This terminator implies that some additional functionality associated with developing an absolute position is outside the system and will not be directly modeled by the logical or physical architecture representations of the system.	Location Data Source	This terminator provides accurate position information. Systems which use GPS, terrestrial trilateration, or driver inputs are all potential examples of Location Data Sources. This terminator contains sensors such as radio position receivers (e.g. GPS) and/or dead reckoning sensors (e.g. odometer, differential odometer, magnetic compass, gyro, etc.). This terminator implies that some additional functionality associated with developing an absolute position is outside the system and will not be directly modeled by the logical or physical architecture representations of the system.
Maintenance and Construction Administrative Systems	This terminator represents the various administrative systems that support the operation of ITS systems for maintenance and construction operations. The interfaces to this terminator support general administrative data interchanges between ITS and non-ITS systems. This includes: interfaces to purchasing for equipment and consumables resupply, interfaces to human resources that manage training and special certification for field crews and other personnel, and interfaces to contract administration functions that administer and monitor the work performance for maintenance and construction contracts.	Maintenance and Construction Administrative Systems	This terminator represents the various administrative systems that support the operation of ITS systems for maintenance and construction operations. The interfaces to this terminator support general administrative data interchanges between ITS and non-ITS systems. This includes: interfaces to purchasing for equipment and consumables resupply, interfaces to human resources that manage training and special certification for field crews and other personnel, and interfaces to contract administration functions that administer and monitor the work performance for maintenance and construction contracts.
Maintenance and Construction Center Personnel	This terminator represents the people that directly interface with the systems in the Maintenance and Construction Management subsystem. These personnel interact with fleet dispatch and management systems, road maintenance systems, incident management systems, work plan scheduling systems, and work zone management systems. They provide operator data and command inputs to direct system operations to varying degrees depending on the type of system and the deployment scenario. All functionality associated with these services that might be automated in the course of ITS deployment is modeled as internal to the architecture.	Maintenance and Construction Center Centre Personnel	This terminator represents the people that directly interface with the systems in the Maintenance and Construction Management subsystem. These personnel interact with fleet dispatch and management systems, road maintenance systems, incident management systems, work plan scheduling systems, and work zone management systems. They provide operator data and command inputs to direct system operations to varying degrees depending on the type of system and the deployment scenario. All functionality associated with these services that might be automated in the course of ITS deployment is modeled as internal to the architecture.

Appendix C2 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Physical Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Maintenance and Construction Field Personnel	This terminator represents the people that perform maintenance and construction field activities including vehicle and equipment operators, field supervisory personnel, field crews, and work zone safety personnel. Information flowing from the Maintenance and Construction Field Personnel terminator will include those system inputs specific to maintenance and construction operations, such as information regarding work zone status, or the status of maintenance actions. The field personnel are also monitored within the work zone to enhance work zone safety. Information provided to Maintenance and Construction Field Personnel includes system outputs such as dispatch requests, maintenance and construction actions to be performed, and work zone safety warnings.	Maintenance and Construction Field Personnel	This terminator represents the people that perform maintenance and construction field activities including vehicle and equipment operators, field supervisory personnel, field crews, and work zone safety personnel. Information flowing from the Maintenance and Construction Field Personnel terminator will include those system inputs specific to maintenance and construction operations, such as information regarding work zone status, or the status of maintenance actions. The field personnel are also monitored within the work zone to enhance work zone safety. Information provided to Maintenance and Construction Field Personnel includes system outputs such as dispatch requests, maintenance and construction actions to be performed, and work zone safety warnings.
Maintenance and Construction Management	<p>The Maintenance and Construction Management Subsystem monitors and manages roadway infrastructure construction and maintenance activities. Representing both public agencies and private contractors that provide these functions, this subsystem manages fleets of maintenance, construction, or special service vehicles (e.g., snow and ice control equipment). The subsystem 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 subsystem participates in incident response by deploying maintenance and construction resources to an incident scene, in coordination with other center subsystems. The subsystem manages equipment at the roadside, including environmental sensors and automated systems that monitor and mitigate adverse road and surface weather conditions. The subsystem 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. Additional interfaces to weather information providers (the weather service and surface transportation weather service providers) provide current and forecast weather information that can be fused with other data sources and used to support advanced decision support systems that increase the efficiency and effectiveness of maintenance and construction operations.</p> <p>The subsystem 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 Information Service Provider or Traffic Management subsystems.) It schedules and manages the location and usage of maintenance assets (such as portable dynamic message signs).</p> <p>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.</p>	Maintenance and Construction Management	<p>The Maintenance and Construction Management Subsystem monitors and manages roadway infrastructure construction and maintenance activities. Representing both public agencies and private contractors that provide these functions, this subsystem manages fleets of maintenance, construction, or special service vehicles (e.g., snow and ice control equipment). The subsystem 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 subsystem participates in incident response by deploying maintenance and construction resources to an incident scene, in coordination with other center<u>centre</u> subsystems. The subsystem manages equipment at the roadside, including environmental sensors and automated systems that monitor and mitigate adverse road and surface weather conditions. The subsystem 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. Additional interfaces to weather information providers (the weather service and surface transportation weather service providers) provide current and forecast weather information that can be fused with other data sources and used to support advanced decision support systems that increase the efficiency and effectiveness of maintenance and construction operations.</p> <p><u>The subsystem 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 Information Service Provider or Traffic Management subsystems.) It schedules and manages the location and usage of maintenance assets (such as portable dynamic message signs).</u></p> <p><u>The subsystem manages the repair and maintenance of both non-ITS and ITS equipment.</u> 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.</p>
Maintenance and Construction Vehicle	This subsystem resides in a maintenance, construction, or other specialized service vehicle or equipment and provides the sensory, 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 subsystem 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. For example, for a snow plow, the information would include whether the plow is up or down and material usage information. The subsystem may also contain capabilities to monitor vehicle systems to support maintenance of the vehicle itself and other sensors that monitor environmental conditions including the road condition and surface weather information. This subsystem can represent a diverse set of mobile environmental sensing platforms, including wheeled vehicles and any other vehicle that collects and reports environmental information.	Maintenance and Construction Vehicle	This subsystem resides in a maintenance, construction, or other specialized service vehicle or equipment and provides the sensory, 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 subsystem 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. For example, for a snow plow, the information would include whether the plow is up or down and material usage information. The subsystem may also contain capabilities to monitor vehicle systems to support maintenance of the vehicle itself and other sensors that monitor environmental conditions including the road condition and surface weather information. This subsystem can represent a diverse set of mobile environmental sensing platforms, including wheeled vehicles and any other vehicle that collects and reports environmental information.
Map Update Provider	This terminator represents a provider of map databases used to support ITS services. It supports the provision of the databases that are used by travelers (e.g., navigable maps used for route guidance and display maps used at traveler information points) as well as those that are used by system operators (e.g., map data used by Traffic Operators to monitor and manage the road network, map data used by Fleet Managers to manage a vehicle fleet). This terminator 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 road network topology, or full geographic information system databases that are used to support ITS.	Map Update Provider	This terminator represents a provider of map databases used to support ITS services. It supports the provision of the databases that are used by traveler <u>travellers</u> (e.g., navigable maps used for route guidance and display maps used at traveler <u>traveller</u> information points) as well as those that are used by system operators (e.g., map data used by Traffic Operators to monitor and manage the road network, map data used by Fleet Managers to manage a vehicle fleet). This terminator 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 road network topology, or full geographic information system databases that are used to support ITS.

Appendix C2 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Physical Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Media	This terminator 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 terminator. It is also a source for traffic flow information, incident and special event information, and other events which may have implications for the transportation system.	Media	This terminator represents the information systems that provide traffic reports, travel and weather 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 terminator. It is also a source for traffic flow information, incident and special event information, and other events which may have implications for the transportation system.
Multimodal Crossings	This terminator represents the control equipment that interfaces to a non-road based transportation system at an interference crossing with the roadway. The majority of these crossings are railroad grade crossings that are more specifically addressed by the "Wayside Equipment" terminator. This multimodal crossing terminator addresses similar interface requirements, but for other specialized intersections like draw bridges at rivers and canals. These crossings carry traffic that may take priority over the road traffic at the intersection. The data provided will in its basic form be a simple "stop road traffic" indication. However more complex data flows may be provided that give the time at which right-of-way will be required and the duration of that right-of-way requirement.	Multimodal Crossings	This terminator represents the control equipment that interfaces to a non-road based transportation system at an interference crossing with the roadway. The majority of these crossings are railroad grade crossings that are more specifically addressed by the "Wayside Equipment" terminator. This multimodal crossing terminator addresses similar interface requirements, but for other specialized intersections like draw bridges at rivers and canals. These crossings carry traffic that may take priority over the road traffic at the intersection. The data provided will in its basic form be a simple "stop road traffic" indication. However more complex data flows may be provided that give the time at which right-of-way will be required and the duration of that right-of-way requirement.
Multimodal Transportation Service Provider	This terminator provides the interface through which Transportation Service Providers can exchange data with ITS. They are the operators of non-roadway transportation systems (e.g. airlines, ferry services, passenger carrying heavy rail) and providers of non-motorized transportation facilities. This two-way interface enables coordination for efficient movement of people across multiple transportation modes. It also enables the traveler to efficiently plan itineraries which include segments using modes not directly included in the ITS User Services.	Multimodal Transportation Service Provider	This terminator provides the interface through which Transportation Service Providers can exchange data with ITS. They are the operators of non-roadway transportation systems (e.g. airlines, ferry services, passenger carrying heavy rail) and providers of non-motorized transportation facilities. This two-way interface enables coordination for efficient movement of people across multiple transportation modes. It also enables the traveler traveller to efficiently plan itineraries which include segments using modes not directly included in the ITS User Services.
Other Archives	This terminator represents distributed archived data systems or centers whose data can be accessed and shared with a local archive. The interface between the Other Archives Terminator and the Archived Data Management Subsystem allows data from multiple archives to be accessed on demand or imported and consolidated into a single repository.	Other Archives	This terminator represents distributed archived data systems or centers centres whose data can be accessed and shared with a local archive. The interface between the Other Archives Terminator and the Archived Data Management Subsystem allows data from multiple archives to be accessed on demand or imported and consolidated into a single repository.
Other CVAS	This terminator is intended to provide a source and destination for ITS data flows between peer (e.g. inter-regional) commercial vehicle administration functions. It enables commercial vehicle administration activities to be coordinated across different jurisdictional areas. In the Physical Architecture, this terminator is a reciprocal Commercial Vehicle Administration Subsystem (CVAS). This terminator encompasses all functions associated with commercial vehicle safety, registration, and operating authority for non-U.S. based commercial motor vehicle carriers. The agencies represented herein may include Federal, state, provincial, and local regulatory entities outside the U.S.	Other CVAS	This terminator is intended to provide a source and destination for ITS data flows between peer (e.g. inter-regional) commercial vehicle administration functions. It enables commercial vehicle administration activities to be coordinated across different jurisdictional areas. In the Physical Architecture, this terminator is a reciprocal Commercial Vehicle Administration Subsystem (CVAS). This terminator encompasses all functions associated with commercial vehicle safety, registration, and operating authority for non-U.S. based commercial motor vehicle carriers. The agencies represented herein may include Federal, state, provincial, and local regulatory entities outside the U.S.
Other Data Sources	This terminator represents the myriad systems and databases containing data not generated from subsystems and terminators represented in the National ITS Architecture that can provide predefined data sets to the ITS archive. The terminator 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.	Other Data Sources	This terminator represents the myriad systems and databases containing data not generated from subsystems and terminators represented in the National -ITS Architecture for Canada that can provide predefined data sets to the ITS archive. The terminator 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.
Other Emergency Management	Representing other Emergency Management centers, systems or subsystems, this terminator provides a source and destination for ITS data 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 highway-related incidents, including disasters. The interface represented by this terminator enables emergency management activities to be coordinated across jurisdictional boundaries and between functional areas. In the Physical Architecture this terminator is a reciprocal Emergency Management Subsystem (EM) implying the requirements for general networks connecting many allied agencies. The interface between this terminator and the EM supports coordination of incident management information between many different centers providing Public Safety Answering Point (both public or private sector implementations), Public Safety Dispatch, Emergency Operations Centers, and other functions that participate in the detection, verification, response, recovery and clearance of incidents, including disasters. This terminator also supports interface to other allied agencies like utility companies that also participate in the coordinated response to selected highway-related incidents.	Other Emergency Management	Representing other Emergency Management centers centres , systems or subsystems, this terminator provides a source and destination for ITS data flows between various communications centers centres operated by public safety agencies, emergency management agencies, other allied agencies, and private companies that participate in coordinated management of highway-related incidents, including disasters. The interface represented by this terminator enables emergency management activities to be coordinated across jurisdictional boundaries and between functional areas. In the Physical Architecture this terminator is a reciprocal Emergency Management Subsystem (EM) implying the requirements for general networks connecting many allied agencies. The interface between this terminator and the EM supports coordination of incident management information between many different centers centres providing Public Safety Answering Point (both public or private sector implementations), Public Safety Dispatch, Emergency Operations Centers Centres , and other functions that participate in the detection, verification, response, recovery and clearance of incidents, including disasters. This terminator also supports interface to other allied agencies like utility companies that also participate in the coordinated response to selected highway-related incidents.
Other ISP	Representing other distinct Information Service Providers, this terminator is intended to provide a source and destination for ITS data flows between peer information and service provider functions. It enables cooperative information sharing between providers as conditions warrant. In the Physical Architecture this terminator is a reciprocal Information Service Provider (ISP) Subsystem.	Other ISP	Representing other distinct Information Service Providers, this terminator is intended to provide a source and destination for ITS data flows between peer information and service provider functions. It enables cooperative information sharing between providers as conditions warrant. In the Physical Architecture this terminator is a reciprocal Information Service Provider (ISP) Subsystem.

Appendix C2 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Physical Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Other MCM	Representing another Maintenance and Construction Management center or subsystem, this terminator 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. In the Physical Architecture, this terminator is a reciprocal Maintenance and Construction Management Subsystem (MCMS).	Other MCM	Representing another Maintenance and Construction Management center or subsystem, this terminator 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. In the Physical Architecture, this terminator is a reciprocal Maintenance and Construction Management Subsystem (MCMS).
Other MCV	This terminator represents another ITS Maintenance and Construction Vehicle Subsystem. It provides a source and destination for ITS information transfers between maintenance and construction vehicles. These information transfers allow vehicle operational status, environmental information, and work zone intrusion warnings or alarms to be shared between vehicles.	Other MCV	This terminator represents another ITS Maintenance and Construction Vehicle Subsystem. It provides a source and destination for ITS information transfers between maintenance and construction vehicles. These information transfers allow vehicle operational status, environmental information, and work zone intrusion warnings or alarms to be shared between vehicles.
Other Parking	Representing another parking facility, system or subsystem, this terminator provides a source and destination for information that may be exchanged between peer parking systems. This terminator enables parking management activities to be coordinated between different parking operators or systems in a region. In the Physical Architecture this terminator is a reciprocal Parking Management Subsystem.	Other Parking	Representing another parking facility, system or subsystem, this terminator provides a source and destination for information that may be exchanged between peer parking systems. This terminator enables parking management activities to be coordinated between different parking operators or systems in a region. In the Physical Architecture this terminator is a reciprocal Parking Management Subsystem.
Other Roadway	Representing another roadway system or subsystem, this terminator supports “field device” to “field device” communication and coordination, and provides a source and destination for information that may be exchanged between roadway subsystems. The interface to this terminator 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).	Other Roadway	Representing another roadway system or subsystem, this terminator supports “field device” to “field device” communication and coordination, and provides a source and destination for information that may be exchanged between roadway subsystems. The interface to this terminator 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).
Other Toll Administration	Representing another Toll Administration center or subsystem, this terminator is intended to provide a source and destination for ITS information flows between toll administration functions. This interface allows reconciliation of toll charges across different agencies by allowing the exchange of information about clients who have incurred charges in jurisdictions of toll collection agencies other than their home (billing) customer service center. This interface enables "reciprocity" between participating customer service centers. In the Physical Architecture, this terminator is a reciprocal Toll Administration Subsystem (TAS).	Other Toll Administration	Representing another Toll Administration center or subsystem, this terminator is intended to provide a source and destination for ITS information flows between toll administration functions. This interface allows reconciliation of toll charges across different agencies by allowing the exchange of information about clients who have incurred charges in jurisdictions of toll collection agencies other than their home (billing) customer service center . This interface enables "reciprocity" between participating customer service centers . In the Physical Architecture, this terminator is a reciprocal Toll Administration Subsystem (TAS).
Other Traffic Management	Representing another Traffic Management center, system or subsystem, this terminator is intended to provide a source and destination for ITS data flows between peer (e.g. inter-regional) traffic management functions. It enables traffic management activities to be coordinated across different jurisdictional areas. In the Physical Architecture, this terminator is a reciprocal Traffic Management Subsystem (TMS).	Other Traffic Management	Representing another Traffic Management center , system or subsystem, this terminator is intended to provide a source and destination for ITS data flows between peer (e.g. inter-regional) traffic management functions. It enables traffic management activities to be coordinated across different jurisdictional areas. In the Physical Architecture, this terminator is a reciprocal Traffic Management Subsystem (TMS).
Other Transit Management	Representing another Transit Management center, system or subsystem, this terminator is intended to provide a source and destination for ITS data flows between peer (e.g. inter-regional) transit management functions. It enables transit management activities to be coordinated across geographic boundaries or different jurisdictional areas. In the Physical Architecture this terminator represents a reciprocal Transit Management Subsystem (TRMS).	Other Transit Management	Representing another Transit Management center , system or subsystem, this terminator is intended to provide a source and destination for ITS data flows between peer (e.g. inter-regional) transit management functions. It enables transit management activities to be coordinated across geographic boundaries or different jurisdictional areas. In the Physical Architecture this terminator represents a reciprocal Transit Management Subsystem (TRMS).
Other Vehicle	This terminator represents another ITS vehicle system or subsystem and provides a source and destination for ITS information transfers between peer vehicle systems to support vehicle-to-vehicle communication and coordination. These features are associated with advanced vehicle safety systems and services that require communications between vehicles.	Other Vehicle	This terminator represents another ITS vehicle system or subsystem and provides a source and destination for ITS information transfers between peer vehicle systems to support vehicle-to-vehicle communication and coordination. These features are associated with advanced vehicle safety systems and services that require communications between vehicles.
Parking Management	The Parking Management Subsystem provides electronic monitoring and management of parking facilities. It supports a Field-Vehicle Communications link to the Vehicle Subsystem 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 subsystem functionality must be located in the parking facility where it can monitor, classify, and share information with customers and their vehicles. The subsystem 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.	Parking Management	The Parking Management Subsystem provides electronic monitoring and management of parking facilities. It supports a Field-Vehicle Communications link to the Vehicle Subsystem 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 subsystem functionality must be located in the parking facility where it can monitor, classify, and share information with customers and their vehicles. The subsystem 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.
Parking Operator	This terminator is the human entity that may be physically present at the parking lot facility to monitor the operational status of the facility.	Parking Operator	This terminator is the human entity that may be physically present at the parking lot facility to monitor the operational status of the facility.

Appendix C2 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Physical Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Pedestrians	This terminator provides input (e.g. a request for right of way at an intersection) from a specialized form of the Traveler who is not using any type of vehicle (including bicycles) as a form of transport. Pedestrians may comprise those on foot and those in wheelchairs.	Pedestrians	This terminator provides input (e.g. a request for right of way at an intersection) from a specialized form of the Traveler Traveller who is not using any type of vehicle (including bicycles) as a form of transport. Pedestrians may comprise those on foot and those in wheelchairs.
Personal Information Access	This subsystem provides the capability for travelers to receive formatted traffic advisories from their homes, place of work, major trip generation sites, personal portable devices, over multiple types of electronic media. These capabilities also provide basic routing information and allow users to select those transportation modes that allow them to avoid congestion, or more advanced capabilities to allow users to specify those transportation parameters that are unique to their individual needs and receive travel information. This subsystem provides travelers with the capability to receive route planning from the infrastructure at fixed locations such as in their homes, their place of work, and at mobile locations using personal portable devices and vehicle-based devices. In addition to end user devices, this subsystem may also represent a device that is used by a merchant or other service provider to receive traveler information and relay important information to their customers. This subsystem also provides the capability to initiate a distress signal and cancel a prior-issued manual request for help.	Personal Information Access	This subsystem provides the capability for traveler travellers to receive formatted traffic advisories from their homes, place of work, major trip generation sites, personal portable devices, over multiple types of electronic media. These capabilities also provide basic routing information and allow users to select those transportation modes that allow them to avoid congestion, or more advanced capabilities to allow users to specify those transportation parameters that are unique to their individual needs and receive travel and weather information. This subsystem provides traveler travellers with the capability to receive route planning from the infrastructure at fixed locations such as in their homes, their place of work, and at mobile locations using personal portable devices and vehicle-based devices. In addition to end user devices, this subsystem may also represent a device that is used by a merchant or other service provider to receive traveler traveller information and relay important information to their customers. This subsystem also provides the capability to initiate a distress signal and cancel a prior-issued manual request for help.
Potential Obstacles	Any object that possesses the potential of being sensed and struck and thus also possesses physical attributes. Potential Obstacles include roadside obstructions, other vehicles, pedestrians, infrastructure elements or any other element which is in a potential path of the vehicle. This terminator represents the physical obstacles which possess properties which enable detection using sensory functions included as part of the ITS architecture. These physical attributes are represented as a data input to the system.	Potential Obstacles	Any object that possesses the potential of being sensed and struck and thus also possesses physical attributes. Potential Obstacles include roadside obstructions, other vehicles, pedestrians, infrastructure elements or any other element which is in a potential path of the vehicle. This terminator represents the physical obstacles which possess properties which enable detection using sensory functions included as part of the ITS architecture. These physical attributes are represented as a data input to the system.
Public Health System	This terminator represents the systems operated by hospitals or regional public health departments that can respond to requests for specific information regarding emergencies involving biohazards - such as biological attacks, hazardous materials spills, or other threats to public health. This terminator can provide recommended courses of action to emergency management to improve the response, quarantining, or evacuation based on the type of hazard involved.	Public Health System	This terminator represents the systems operated by hospitals or regional public health departments that can respond to requests for specific information regarding emergencies involving biohazards - such as biological attacks, hazardous materials spills, or other threats to public health. This terminator can provide recommended courses of action to emergency management to improve the response, quarantining, or evacuation based on the type of hazard involved.
Rail Operations	This terminator represents the (usually) centralized control point for a substantial segment of a freight railroad's operations and maintenance activities. It is roughly the railroad equivalent to a highway Traffic Management Center. It is the source and destination of information that can be used to coordinate rail and highway traffic management and maintenance operations. It is also the source and destination for incident, incident response, disaster, or evacuation information that is exchanged with Emergency Management. This terminator would also represent a railroad's management information system, if that system is the source or destination for this information. The use of a single terminator for multiple sources and destination for information exchange with railroads is meant to imply the need for a single, consistent interface between a given railroad's operations and maintenance activities and ITS.	Rail Operations	This terminator represents the (usually) centralized control point for a substantial segment of a freight railroad's operations and maintenance activities. It is roughly the railroad equivalent to a highway Traffic Management Center Centre. It is the source and destination of information that can be used to coordinate rail and highway traffic management and maintenance operations. It is also the source and destination for incident, incident response, disaster, or evacuation information that is exchanged with Emergency Management. This terminator would also represent a railroad's management information system, if that system is the source or destination for this information. The use of a single terminator for multiple sources and destination for information exchange with railroads is meant to imply the need for a single, consistent interface between a given railroad's operations and maintenance activities and ITS.
Remote Traveler Support	<p>This subsystem 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, simple displays providing schedule information and imminent arrival signals can be provided. This basic information may be extended to include multi-modal information including traffic conditions and transit schedules along with yellow pages information 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. The subsystem also supports electronic payment of transit fares.</p> <p>In addition to the traveler information provisions, this subsystem also supports security and safety monitoring of public areas. This monitoring includes traveler activated silent alarms, as well as surveillance and sensor equipment. The surveillance equipment includes video (e.g. CCTV cameras) and/or audio systems. The sensor equipment includes threat sensors (e.g. chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors) and object detection sensors (e.g. metal detectors).</p>	Remote Traveler Traveller Support	<p>This subsystem provides access to travelertraveller 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 centerscentres, hotels, office complexes, amusement parks, and theaters. TravelerTraveller information access points include kiosks and informational displays supporting varied levels of interaction and information access. At transit stops, simple displays providing schedule information and imminent arrival signals can be provided. This basic information may be extended to include multi-modal information including traffic and weather conditions and transit schedules along with yellow pagesbusiness directory information 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 travelertraveller. The subsystem also supports electronic payment of transit fares.</p> <p>In addition to the travelertraveller information provisions, this subsystem also supports security and safety monitoring of public areas. This monitoring includes travelertraveller activated silent alarms, as well as surveillance and sensor equipment. The surveillance equipment includes video (e.g. CCTV cameras) and/or audio systems. The sensor equipment includes threat sensors (e.g. chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors) and object detection sensors (e.g. metal detectors).</p>

Appendix C2 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Physical Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Roadway Environment	This terminator represents the physical condition and geometry of the road surface and the conditions surrounding the roadway. The geometry of the roadway and the road surface characteristics must be sensed and interpreted to support automated vehicle control services. Surrounding conditions may include fog, ice, snow, rain, wind, etc. which will influence the way in which a vehicle can be safely operated on the roadway. The condition of the roadway must be monitored by the architecture to enable corrective action and information dissemination regarding roadway conditions which may adversely affect travel. This physical interface carries these physical condition and geometry attributes which must be sensed, interpreted, and processed by functions internal to the system to achieve ITS User Service functionality.	Roadway Environment	This terminator represents the physical condition and geometry of the road surface and the conditions surrounding the roadway. The geometry of the roadway and the road surface characteristics must be sensed and interpreted to support automated vehicle control services. Surrounding conditions may include fog, ice, snow, rain, wind, etc. which will influence the way in which a vehicle can be safely operated on the roadway. The condition of the roadway must be monitored by the architecture to enable corrective action and information dissemination regarding roadway conditions which may adversely affect travel. This physical interface carries these physical condition and geometry attributes which must be sensed, interpreted, and processed by functions internal to the system to achieve ITS User Service functionality.
Roadway Subsystem	This subsystem includes the equipment distributed on and along the roadway that monitors and controls traffic and monitors and manages the roadway itself. Equipment 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 freeway ramp metering systems. HOV lane management, reversible lane management functions, and barrier systems that control access to transportation infrastructure such as roadways, bridges and tunnels are also supported. This subsystem also provides the capability for environmental monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. In adverse conditions, automated systems can be used to apply anti-icing materials, disperse fog, etc. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included. To enhance security, safeguard systems such as blast shields, exhaust systems and other automated and remotely controlled systems to protect transportation infrastructure is also provided. In advanced implementations, this subsystem supports automated vehicle safety systems by safely controlling access to and egress from an Automated Highway System through monitoring of, and communications with, AHS vehicles. Intersection collision avoidance functions are provided by determining the probability of a collision in the intersection and sending appropriate warnings and/or control actions to the approaching vehicles.	Roadway Subsystem	This subsystem includes the equipment distributed on and along the roadway that monitors and controls traffic and monitors and manages the roadway itself. Equipment 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 freeway ramp metering systems. HOV lane management, reversible lane management functions, and barrier systems that control access to transportation infrastructure such as roadways, bridges and tunnels are also supported, <u>as well as transit priority, and emergency vehicle pre-emption functions.</u> This subsystem also provides the capability for <u>emissions and environmental conditions</u> monitoring including sensors that measure road conditions, surface weather, and vehicle emissions. In adverse conditions, automated systems can be used to apply anti-icing materials, disperse fog, etc. Work zone systems including work zone surveillance, traffic control, driver warning, and work crew safety systems are also included. To enhance security, safeguard systems such as blast shields, exhaust systems and other automated and remotely controlled systems to protect transportation infrastructure is also provided. In advanced implementations, this subsystem supports automated vehicle safety systems by safely controlling access to and egress from an Automated Highway System (<u>AHS</u>) through monitoring of, and communications with, AHS vehicles. Intersection collision avoidance functions are provided by determining the probability of a collision in the intersection and sending appropriate warnings and/or control actions to the approaching vehicles. <u>Advanced sensor systems are supported which provide automated protection for non vehicular road users, and users in such vehicles as bicycles and motorcycles.</u>
Secure Area Environment	This terminator represents the environment around any area that is monitored by surveillance or sensor equipment. These areas include public areas frequented by transit users or travelers as well as transportation facilities and infrastructure.	Secure Area Environment	This terminator represents the environment around any area that is monitored by surveillance or sensor equipment. These areas include public areas frequented by transit users or travelerstravellers, <u>as well as transportation facilities and infrastructure, and includes bus stops, park and ride (PAR) facilities, kiosks, and transit transfer and multimodal transfer locations.</u>
Security Monitoring Subsystem	This subsystem includes surveillance and sensor equipment used to provide enhanced security and safety for transportation facilities or infrastructure. The equipment represented by this subsystem is located in non-public areas of transportation facilities (e.g. maintenance and transit yards) or located on or near non-roadway parts of the transportation infrastructure (e.g. transit railway and guideways). This subsystem also includes surveillance and sensor equipment located on or near major roadway features such as bridges, tunnels, and interchanges, when the equipment's primary function is one of security and safety. If the primary function of the equipment is traffic surveillance or incident detection, then the surveillance or sensors would be covered as part of the Roadway Subsystem. Similarly, the surveillance and sensor equipment for public areas of transportation facilities is covered in the Remote Traveler Support Subsystem. The surveillance equipment includes video (e.g. CCTV cameras) and/or audio systems. The sensor equipment includes threat sensors (e.g. chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors), object detection (e.g. metal detectors), intrusion or motion detection, and infrastructure integrity monitoring (e.g. rail track continuity checking or bridge structural integrity monitoring). Limited processing of collected sensor and surveillance data is also included in this subsystem to support threat detection and classification.	Security Monitoring Subsystem	This subsystem includes surveillance and sensor equipment used to provide enhanced security and safety for transportation facilities or infrastructure. The equipment represented by this subsystem is located in non-public areas of transportation facilities (e.g. maintenance and transit yards) or located on or near non-roadway parts of the transportation infrastructure (e.g. transit railway and guideways). This subsystem also includes surveillance and sensor equipment located on or near major roadway features such as bridges, tunnels, and interchanges, when the equipment's primary function is one of security and safety. If the primary function of the equipment is traffic surveillance or incident detection, then the surveillance or sensors would be covered as part of the Roadway Subsystem. Similarly, the surveillance and sensor equipment for public areas of transportation facilities is covered in the Remote Traveler <u>Traveller</u> Support Subsystem. The surveillance equipment includes video (e.g. CCTV cameras) and/or audio systems. The sensor equipment includes threat sensors (e.g. chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors), object detection (e.g. metal detectors), intrusion or motion detection, and infrastructure integrity monitoring (e.g. rail track continuity checking or bridge structural integrity monitoring). Limited processing of collected sensor and surveillance data is also included in this subsystem to support threat detection and classification.
Shelter Providers	This terminator provides information about the shelters that open with the threat of a disaster and are operated and maintained until the threat has passed. This terminator may represent individual shelters if they have the capability to provide current information directly to ITS or it may represent a managing organization such as the American Red Cross that operates the shelters and collects and provides aggregate shelter information for a region.	Shelter Providers	This terminator provides information about the shelters that open with the threat of a disaster and are operated and maintained until the threat has passed. This terminator may represent individual shelters if they have the capability to provide current information directly to ITS or it may represent a managing organization such as the American Red Cross that operates the shelters and collects and provides aggregate shelter information for a region.
Storage Facility	This terminator represents the facilities that provide storage and forward staging for equipment and materials used in maintenance and construction operations. It provides status information on the types and quantities of materials and equipment that are available at the facility.	Storage Facility	This terminator represents the facilities that provide storage and forward staging for equipment and materials used in maintenance and construction operations. It provides status information on the types and quantities of materials and equipment that are available at the facility.

Appendix C2 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Physical Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Surface Transportation Weather Service	This terminator 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 the traffic management or maintenance organizations, and their own models to provide surface transportation related weather observations and forecasts including pavement temperature and conditions.	Surface Transportation Weather Meteorological Service Provider	This terminator represents the providers of value-added sector specific meteorological services. These (possibly private) providers utilize National Weather Meteorological Service data and predictions (including the qualified environmental data from the Clarus system national ESS data exchange networks), road condition information and local environmental data provided by the traffic management or maintenance management organizations, and their own models to provide surface transportation related weather observations and forecasts including pavement temperature and conditions.
Telecommunications System for Traveler Information	This terminator 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.	Telecommunications System for Traveler Traveller Information	This terminator provides the caller interface and voice processing (voice recognition/synthesis) that supports voice-enabled traveler traveller 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 Centres and telecommunications providers. The terminator gathers traveler traveller information, alerts, and advisories from information service provider(s) and uses this information to support voice-based interactions with a traveler traveller .
Toll Administration	The Toll Administration Subsystem provides general payment administration capabilities and supports the electronic transfer of authenticated funds from the customer to the transportation system operator. This subsystem supports traveler enrollment and collection of both pre-payment and post-payment transportation fees in coordination with the existing, and evolving financial infrastructure supporting electronic payment transactions. The system may establish and administer escrow accounts depending on the clearinghouse scheme and the type of payments involved. This subsystem posts a transaction to the customer account and generates a bill (for post-payment accounts), debits an escrow account, or interfaces to the financial infrastructure to debit a customer designated account. It supports communications with the Toll Collection Subsystem to support fee collection operations. The subsystem also sets and administers the pricing structures and includes the capability to implement road pricing policies in coordination with the Traffic Management Subsystem. The electronic financial transactions in which this subsystem is an intermediary between the customer and the financial infrastructure shall be cryptographically protected and authenticated to preserve privacy and ensure authenticity and auditability.	Toll Administration	The Toll Administration Subsystem provides general payment administration capabilities and supports the electronic transfer of authenticated funds from the customer to the transportation system operator. This subsystem supports traveler traveller enrollment and collection of both pre-payment and post-payment transportation fees in coordination with the existing, and evolving financial infrastructure supporting electronic payment transactions. The system may establish and administer escrow accounts depending on the clearinghouse scheme and the type of payments involved. This subsystem posts a transaction to the customer account and generates a bill (for post-payment accounts), debits an escrow account, or interfaces to the financial infrastructure to debit a customer designated account. It supports communications with the Toll Collection Subsystem to support fee collection operations. The subsystem also sets and administers the pricing structures and includes the capability to implement road pricing policies in coordination with the Traffic Management Subsystem. The electronic financial transactions in which this subsystem is an intermediary between the customer and the financial infrastructure shall be cryptographically protected and authenticated to preserve privacy and ensure authenticity and auditability.
Toll Administrator	The Toll Administrator is the human entity that manages the back office payment administration systems for a electronic toll system. This terminator monitors the systems that support the electronic transfer of authenticated funds from the customer to the system operator. The terminator monitors customer enrollment and supports the establishment of escrow accounts depending on the clearinghouse scheme and the type of payments involved. The terminator also establishes and administers the pricing structures and policies.	Toll Administrator	The Toll Administrator is the human entity that manages the back office payment administration systems for a electronic toll system. This terminator monitors the systems that support the electronic transfer of authenticated funds from the customer to the system operator. The terminator monitors customer enrollment and supports the establishment of escrow accounts depending on the clearinghouse scheme and the type of payments involved. The terminator also establishes and administers the pricing structures and policies.
Toll Collection	The Toll Collection Subsystem provides the capability for vehicle operators to pay tolls without stopping their vehicles using locally determined pricing structures and includes the capability to implement various variable road pricing policies. Each transaction is accompanied by feedback to the customer indicating the general status of the customer account. A record of the transactions is provided to the Toll Administration Subsystem for reconciliation and so that the customer can periodically receive a detailed record of the transactions.	Toll Collection	The Toll Collection Subsystem provides the capability for vehicle operators to pay tolls without stopping their vehicles using locally determined pricing structures and includes the capability to implement various variable road pricing policies. Each transaction is accompanied by feedback to the customer indicating the general status of the customer account. A record of the transactions is provided to the Toll Administration Subsystem for reconciliation and so that the customer can periodically receive a detailed record of the transactions.
Toll Operator	The Toll Operator is the human entity that may be physically present at the toll plaza to monitor the operational status of the plaza.	Toll Operator	The Toll Operator is the human entity that may be physically present at the toll plaza to monitor the operational status of the plaza.
Traffic	The Traffic terminator represents the collective body of vehicles that travel on surface streets, arterials, highways, expressways, tollways, freeways, or any other vehicle travel surface. Traffic depicts the vehicle population from which traffic flow surveillance information is collected (average occupancy, average speed, total volume, average delay, etc.), and to which traffic control indicators are applied (intersection signals, stop signs, ramp meters, lane control barriers, variable speed limit indicators, etc.). All sensory and control elements that interface to this vehicle population are internal to ITS.	Traffic	The Traffic terminator represents the collective body of vehicles that travel on surface streets, arterials, highways, expressways, tollways, freeways, or any other vehicle travel surface. Traffic depicts the vehicle population from which traffic flow surveillance information is collected (average occupancy, average speed, total volume, average delay, etc.), and to which traffic control indicators are applied (intersection signals, stop signs, ramp meters, lane control barriers, variable speed limit indicators, etc.). All sensory and control elements that interface to this vehicle population are internal to ITS.

Appendix C2 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Physical Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Traffic Management	<p>The Traffic Management Subsystem 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. This subsystem communicates with the Roadway Subsystem to monitor and manage traffic flow and monitor the condition of the roadway, surrounding environmental conditions, and field equipment status. This subsystem coordinates with the Maintenance and Construction Management Subsystem to maintain the road network and coordinate and adapt to maintenance activities, closures, and detours. Incidents are detected, verified, and incident information is provided to allied agencies, drivers (through Roadway Subsystem highway advisory radio and dynamic message signs), and information service providers. This subsystem also manages traffic and transportation resources to support allied agencies in responding to, and recovering from, incidents ranging from minor traffic incidents through major disasters. When required, special traffic management strategies are implemented to support evacuation and reentry. The Traffic Management Subsystem supports HOV lane management and coordination, road pricing, and other demand management policies that can alleviate congestion and influence mode selection. It also manages reversible lane facilities and barrier and safeguard systems that control access to transportation infrastructure. The subsystem communicates with other Traffic Management Subsystems to coordinate traffic information and control strategies in neighboring jurisdictions. It also coordinates with rail operations to support safer and more efficient highway traffic management at highway-rail intersections. Finally, the Traffic Management Subsystem provides the capabilities to exercise control over those devices utilized for automated highway system (AHS) traffic and vehicle control.</p>	Traffic Management	<p>The Traffic Management Subsystem monitors and controls traffic and the road network. It represents centers<u>centres</u> that manage a broad range of transportation facilities including freeway systems, rural and suburban highway systems, and urban and suburban traffic control systems. This subsystem communicates with the Roadway Subsystem to monitor and manage traffic flow and monitor the condition of the roadway, surrounding environmental conditions, and field equipment status. This subsystem coordinates with the Maintenance and Construction Management Subsystem to maintain the road network and coordinate and adapt to maintenance activities, closures, and detours. Incidents are detected, verified, and incident information is provided to allied agencies, drivers (through Roadway Subsystem highway advisory radio and dynamic message signs), and information service providers. This subsystem also manages traffic and transportation resources to support allied agencies in responding to, and recovering from, incidents ranging from minor traffic incidents through major disasters. When required, special traffic management strategies are implemented to support evacuation and reentry. The Traffic Management Subsystem supports HOV lane management and coordination, road pricing, and other demand management policies that can alleviate congestion and influence mode selection. It also manages reversible lane facilities and barrier and safeguard systems that control access to transportation infrastructure. The subsystem communicates with other Traffic Management Subsystems to coordinate traffic information and control strategies in neighboring jurisdictions. It also coordinates with rail operations to support safer and more efficient highway traffic management at highway-rail intersections. Finally, the Traffic Management Subsystem provides the capabilities to exercise control over those devices utilized for automated highway system (AHS) traffic and vehicle control.</p>
Traffic Operations Personnel	<p>This terminator represents the human entity that directly interfaces with vehicle traffic operations. These personnel interact with traffic control systems, traffic surveillance systems, incident management systems, work zone management systems, and travel demand management systems to accomplish ITS services. They provide operator data and command inputs to direct systems' operations to varying degrees depending on the type of system and the deployment scenario. All functionality associated with these services that might be automated in the course of ITS deployment is modeled as internal to the architecture.</p>	Traffic Operations Personnel	<p>This terminator represents the human entity that directly interfaces with vehicle traffic operations. These personnel interact with traffic control systems, traffic surveillance systems, incident management systems, work zone management systems, and travel demand management systems to accomplish ITS services. They provide operator data and command inputs to direct systems' operations to varying degrees depending on the type of system and the deployment scenario. All functionality associated with these services that might be automated in the course of ITS deployment is modeled as internal to the architecture.</p>
Transit Management	<p>The Transit Management Subsystem 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 subsystem's interfaces allow for communication between transit departments and with other operating entities such as emergency response services and traffic management systems. This subsystem receives special event and real-time incident data from the traffic management subsystem. It provides current transit operations data to other center subsystems. It interfaces with the Emergency Management Subsystem to allow coordinated use of transit vehicles to facilitate response to major emergencies or evacuations. The Transit Management Subsystem collects and stores accurate ridership levels and implements fare structures for use in electronic fare collection. It collects operational and maintenance data from transit vehicles, manages vehicle service histories, and assigns vehicle operators and maintenance personnel to vehicles and routes. The Transit Management Subsystem also provides the capability for automated planning and scheduling of public transit operations. The scheduling capability includes schedule writing, block building and runcutting. The subsystem furnishes travelers with real-time travel information, continuously updated schedules, schedule adherence information, transfer options, and transit routes and fares. In addition, the subsystem supports transit security features. This includes monitoring silent alarms, both passenger and operator initiated, on-board transit vehicles. It also includes the capability to support transit vehicle operator authentication and the capability to remotely disable a transit vehicle. The subsystem includes the capability to monitor for a transit vehicle being off the assigned route. The subsystem also includes the capability to alert operators and police to potential incidents identified by these security features.</p>	Transit Management	<p>The Transit Management Subsystem 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 subsystem's interfaces allow for communication between transit departments and with other operating entities such as emergency response services and traffic management systems. This subsystem receives special event and real-time incident data from the traffic management subsystem. It provides current transit operations data to other center<u>centre</u> subsystems. It interfaces with the Emergency Management Subsystem to allow coordinated use of transit vehicles to facilitate response to major emergencies or evacuations. The Transit Management Subsystem collects and stores accurate ridership levels and implements fare structures for use in electronic fare collection. It collects operational and maintenance data from transit vehicles, manages vehicle service histories, and assigns vehicle operators and maintenance personnel to vehicles and routes. The Transit Management Subsystem also provides the capability for automated planning and scheduling of public transit operations. The scheduling capability includes schedule writing, block building and runcutting. The subsystem furnishes traveler<u>travellers</u> with real-time travel information, continuously updated schedules, schedule adherence information, transfer options, and transit routes and fares. <u>The subsystem supports the capability to manage its assets to support connection protection, either on a vehicle basis or, in very advanced applications, on an individual traveller basis. This connection protection can be further extended through co-ordination with other transit agencies, or other modes of transportation.</u> In addition, the subsystem supports transit security features. This includes monitoring silent alarms, both passenger and operator initiated, on-board transit vehicles. It also includes the capability to support transit vehicle operator authentication and the capability to remotely disable a transit vehicle. The subsystem includes the capability to monitor for a transit vehicle being off the assigned route. The subsystem also includes the capability to alert operators and police to potential incidents identified by these security features.</p>

Appendix C2 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Physical Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Transit Operations Personnel	This terminator represents the human entities that are responsible for fleet management, maintenance operations, and scheduling activities of the transit system. These different roles represent a variety of individuals in the transit industry. Within the transit industry the person responsible for fleet management is known by many names: Street Supervisor (most common), Starter, Dispatcher, Supervisor, Traffic Controller, Transportation Coordinator. This entity actively monitors, controls, and modifies the transit fleet routes and schedules on a day to day basis (dynamic scheduling). The modifications will be to take account of abnormal situations such as vehicle breakdown, vehicle delay, detours around work zones or incidents (detour management and service restoration), and other causes of route or schedule deviations. This entity may also be responsible for demand responsive transit operation and for managing emergency situations within the transit network such as silent alarms on board transit vehicles, or the remote disabling of the vehicle. In addition the Transit Operations Personnel may be responsible for assigning vehicle operators to routes, checking vehicle operators in and out, and managing transit stop issues. The Transit Operations Personnel terminator also represents the personnel in the transit garage that are responsible for maintenance of the transit fleets, including monitoring vehicle status, matching vehicles with operators, and maintenance checking of transit vehicles. Finally, the Transit Operations Personnel terminator represents the people responsible for planning, development, and management of transit routes and schedules.	Transit Operations Personnel	This terminator represents the human entities that are responsible for fleet management, maintenance operations, and scheduling activities of the transit system. These different roles represent a variety of individuals in the transit industry. Within the transit industry the person responsible for fleet management is known by many names: Street Supervisor (most common), Starter, Dispatcher, Supervisor, Traffic Controller, Transportation Coordinator. This entity actively monitors, controls, and modifies the transit fleet routes and schedules on a day to day basis (dynamic scheduling). The modifications will be to take account of abnormal situations such as vehicle breakdown, vehicle delay, detours around work zones or incidents (detour management and service restoration), and other causes of route or schedule deviations. This entity may also be responsible for demand responsive transit operation and for managing emergency situations within the transit network such as silent alarms on board transit vehicles, or the remote disabling of the vehicle. In addition the Transit Operations Personnel may be responsible for assigning vehicle operators to routes, checking vehicle operators in and out, and managing transit stop issues. The Transit Operations Personnel terminator also represents the personnel in the transit garage that are responsible for maintenance of the transit fleets, including monitoring vehicle status, matching vehicles with operators, and maintenance checking of transit vehicles. Finally, the Transit Operations Personnel terminator represents the people responsible for planning, development, and management of transit routes and schedules.
Transit Vehicle Operator	This terminator represents the human entity that receives and provides additional information that is specific to operating the ITS functions in all types of transit vehicles. . To support transit vehicle security features, the Transit Vehicle Operator can input to the Transit Vehicle Subsystem a silent alarm. The operator can also be required to enter an authentication command (used to enable operation of the vehicle). The information received by the operator would include status of on-board systems. Additional information received depends upon the type of transit vehicle. In the case of fixed route transit vehicles, the Transit Vehicle Operator would receive operator instructions that might include actions to take to correct schedule deviations. In the case of flexible fixed routes and demand response routes the information would also include dynamic routing or passenger pickup information.	Transit Vehicle Operator	This terminator represents the human entity that receives and provides additional information that is specific to operating the ITS functions in all types of transit vehicles. . To support transit vehicle security features, the Transit Vehicle Operator can input to the Transit Vehicle Subsystem a silent alarm. The operator can also be required to enter an authentication command (used to enable operation of the vehicle). The information received by the operator would include status of on-board systems. Additional information received depends upon the type of transit vehicle. In the case of fixed route transit vehicles, the Transit Vehicle Operator would receive operator instructions that might include actions to take to correct schedule deviations. In the case of flexible fixed routes and demand response routes the information would also include dynamic routing or passenger pickup information.
Transit Vehicle Subsystem	This subsystem 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 subsystem include buses, paratransit vehicles, light rail vehicles, other vehicles designed to carry passengers, and supervisory vehicles. The subsystem collects accurate ridership levels and supports electronic fare collection. The subsystem supports a traffic signal prioritization function that communicates with the roadside subsystem to improve on-schedule performance. Automated vehicle location functions enhance the information available to the Transit Management Subsystem enabling more efficient operations. On-board sensors support transit vehicle maintenance. The subsystem 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. The sensor equipment includes threat sensors (e.g. chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors) and object detection sensors (e.g. metal detectors). In addition, the subsystem supports vehicle operator authentication prior to operation of the vehicle and remote vehicle disabling. The subsystem also furnishes travelers with real-time travel information, continuously updated schedules, transfer options, routes, and fares.	Transit Vehicle Subsystem	This subsystem 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 subsystem include buses, paratransit vehicles, light rail vehicles, other vehicles designed to carry passengers, and supervisory vehicles. The subsystem collects accurate ridership levels and supports electronic fare collection. The subsystem supports a traffic signal prioritization function that communicates with the roadside subsystem to improve on-schedule performance. Automated vehicle location functions enhance the information available to the Transit Management Subsystem enabling more efficient operations. On-board sensors support transit vehicle maintenance. The subsystem 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. The sensor equipment includes threat sensors (e.g. chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors) and object detection sensors (e.g. metal detectors). In addition, the subsystem supports vehicle operator authentication prior to operation of the vehicle and remote vehicle disabling. The subsystem also furnishes traveler travellers with real-time travel and weather information, continuously updated schedules, transfer options, routes, and fares.
Traveler	This terminator 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. The terminator 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. This general terminator is supplemented in the architecture by the specific "Driver" terminator that supports interfaces that are specific to drivers.	Traveler Traveller	This terminator represents any individual who uses transportation services. The interfaces to the traveler traveller 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. The terminator 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 centres. This general terminator is supplemented in the architecture by the specific "Driver" terminator that supports interfaces that are specific to drivers.
Traveler Card	This terminator represents the entity that enables the actual transfer of electronic information from the user of a service (I.e. a traveler) to the provider of the service. This may include the transfer of funds through means of an electronic payment instrument. The device, like a smart card, may also hold and update the traveler's information such as personal profiles or trip histories.	Traveler Traveller Card	This terminator represents the entity that enables the actual transfer of electronic information from the user of a service (I.e. a traveler traveller) to the provider of the service. This may include the transfer of funds through means of an electronic payment instrument. The device, like a smart card, may also hold and update the traveler's traveller's information such as personal profiles or trip histories.

Appendix C2 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Physical Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Vehicle	<p>This subsystem provides the sensory, processing, storage, and communications functions necessary to support efficient, safe, and convenient travel. These functions reside in general vehicles including personal automobiles, commercial vehicles, emergency vehicles, transit vehicles, or other vehicle types. Information services provide the driver with current travel conditions and the availability of services along the route and at the destination. Both one-way and two-way communications options support a spectrum of information services from low-cost broadcast services to advanced, pay for use 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. Initial collision avoidance functions provide “vigilant co-pilot” driver warning capabilities. More advanced functions assume limited control of the vehicle to maintain safe headway. Ultimately, this subsystem supports completely automated vehicle operation through advanced communications with other vehicles in the vicinity and in coordination with supporting infrastructure subsystems. Pre-crash safety systems are deployed and emergency notification messages are issued when unavoidable collisions do occur.</p>	Vehicle	<p>This subsystem<u>This subsystem resides in a vehicle (usually in an automobile, but any vehicle not covered by particular vehicle subsystem) and</u> provides the sensory, processing, storage, and communications functions necessary to support efficient, safe, and convenient travel. These functions reside in general vehicles including personal automobiles, commercial vehicles, emergency vehicles, transit vehicles, <u>maintenance vehicles</u> or other vehicle types. Information services provide the driver with current travel <u>and weather</u> conditions and the availability of services along the route and at the destination.- Both one-way and two-way communications options support a spectrum of information services from low-cost broadcast services to advanced, pay for use personalized information services. Route guidance capabilities assist in formulation of an optimal route and step by step guidance along the travel route. <u>Advanced</u> 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. Initial collision avoidance functions provide “vigilant co-pilot” driver warning capabilities. <u>More advanced</u> functions assume limited control of the vehicle to maintain safe headway. Ultimately, this subsystem supports completely automated vehicle operation through advanced communications with other vehicles in the vicinity and in coordination with supporting infrastructure subsystems. <u>Pre-crashcollision</u> safety systems are deployed and emergency notification messages are issued when unavoidable collisions do occur. <u>While the majority of the systems described above apply to automobiles, some of the systems can apply to other forms of vehicles such as motorcycles and even bicycles.</u></p>
Vehicle Characteristics	<p>This terminator represents the external view of an individual vehicle. It includes vehicle characteristics such as height, width, length, weight, and other properties (e.g., magnetic properties, number of axles) that allow an individual vehicle to be detected and measured or classified. This external view of an individual vehicle is also used as a source of visible data that supports individual vehicle imaging requirements in the architecture.</p> <p>ITS subsystems at the roadside sense these characteristics and generate ITS data flows. These individual vehicle characteristics are important for toll collection, parking management, and other applications that identify and measure individual vehicles. See also the related "Traffic" terminator which represents physical characteristics of many vehicles in the aggregate that is measured for general traffic applications.</p>	Vehicle Characteristics	<p>This terminator represents the external view of an individual vehicle. It includes vehicle characteristics such as height, width, length, weight, and other properties (e.g., magnetic properties, number of axles) that allow an individual vehicle to be detected and measured or classified. This external view of an individual vehicle is also used as a source of visible data that supports individual vehicle imaging requirements in the architecture.</p> <p><u>ITS</u> subsystems at the roadside sense these characteristics and generate ITS data flows. These individual vehicle characteristics are important for toll collection, parking management, and other applications that identify and measure individual vehicles. See also the related "Traffic" terminator which represents physical characteristics of many vehicles in the aggregate that is measured for general traffic applications. <u>The vehicles represented by this Terminator include automobiles, trucks, buses, motorcycles, bicycles, and any other form of motorised vehicle (e.g., electric cart).</u></p>
Wayside Equipment	<p>This terminator represents train interface equipment (usually) maintained and operated by the railroad and (usually) physically located at or near a grade crossing. This terminator is the source and destination for HRI 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.</p>	Wayside Equipment	<p>This terminator represents train interface equipment (usually) maintained and operated by the railroad and (usually) physically located at or near a grade crossing. This terminator is the source and destination for HRI 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.</p>
Weather Service	<p>This terminator 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. This terminator represents the Clarus system, which collects environmental data from ITS systems, assesses the quality of the data, and disseminates the qualified data upon request (including dissemination to ITS systems). 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.</p>	Weather <u>National Meteorological</u> Service	<p>This terminator provides weather, hydrologic, and climate information and warnings of hazardous weather including thunderstorms, flooding, hurricanes, tornadoes, winter weather, tsunamis, and climate events. <u>It</u> provides atmospheric weather observations and forecasts that are collected and derived by the <u>National Weather</u><u>Meteorological</u> Service <u>of Canada</u>, private sector providers, and various research organizations. This terminator represents the <u>Clarus system</u><u>national ESS data exchange network</u>, which collects environmental data from ITS systems, assesses the quality of the data, and disseminates the qualified data upon request (including dissemination to ITS systems). The interface provides formatted weather data <u>and forecasts</u> 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.</p>
Yellow Pages Service Providers	<p>This terminator represents the individual organizations that provide any service oriented towards the Traveler. Example services that could be included are gas, food, lodging, vehicle repair, points of interest, and recreation areas. Also included are services specifically directed toward bicyclists and pedestrians such as bicycle shops and parking locations and bicycle and pedestrian rest areas. The Service Providers may pay a fee to have their services advertised to travelers. The interface with the Service Provider is necessary so that accurate, up-to-date service information can be provided to the traveler and to support electronic reservation capabilities included in the ITS User Services.</p>	Yellow Pages <u>Business Directory</u> Service Providers	<p>This terminator represents the individual organizations that provide any service oriented towards the Traveler<u>Traveller</u>. Example services that could be included are gas, food, lodging, vehicle repair, points of interest, and recreation areas. Also included are services specifically directed toward bicyclists and pedestrians such as bicycle shops and parking locations and bicycle and pedestrian rest areas. The Service Providers may pay a fee to have their services advertised to travelers<u>travellers</u>. The interface with the Service Provider is necessary so that accurate, up-to-date service information can be provided to the traveler<u>traveller</u> and to support electronic reservation capabilities included in the ITS User Services.</p>

APPENDIX

C-3 *INFORMATION FLOW TEXT COMPARISON*

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
access permission	Information returned indicating whether permission for access is granted and instructions for proceeding.	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.	access request	Request for access to an access-controlled transportation facility.
accident report	Report of 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.	accident report	Report of 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.	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	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 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.	alarm notification	Notification of activation of an audible or silent alarm by a traveler traveller 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	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 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 containing the response by a Commercial Vehicle Driver or Fleet-Freight Manager that confirms or cancels an alert.	alert response	This flow represents the tactile or auditory interface with ITS equipment containing 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.	alert status	Information indicating the current status of the emergency alert including identification of the traveler traveller 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	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 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.	alerts and advisories	Assessments (general incident and vulnerability awareness information), advisories (identification of threats or 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 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 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 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 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 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 request confirmation	Confirmation that an archive request has been received and processed with information on the disposition of the request.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
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 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.	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 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.	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, carbon monoxide, and nitrogen oxides, and operational status of the sensors.	area pollution data	Measured air quality data, including measured levels of atmospheric pollutants including ozone, particulate matter, 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.	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.	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 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 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 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 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.	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.	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 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 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, headways), maneuver coordination, and check in/checkout instructions.	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, headways), maneuver coordination, and check in/checkout instructions.
automated vehicle status	Data provided by an automated vehicle identifying it's 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.	automated vehicle status	Data provided by an automated vehicle identifying it's 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.	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 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.	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.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
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 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.	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.	boarding and alighting	Detection of transit passenger boarding and alighting. This flow represents the travelers 'travellers' 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.	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 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	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 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 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 they become available. Recipients may include trade regulatory agencies that do not receive status information directly from U.S. Customs (e.g., other transportation agencies with trade related responsibilities, such as NHTSA, MARAD, etc.)	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 they become available. Recipients may include trade regulatory agencies that do not receive status information directly from U.S. Customs (e.g., other transportation agencies with trade related responsibilities, such as NHTSA, MARAD, etc.)
border crossing status information	Port of entry status including current wait-times.	border crossing status information	Port of entry status including current wait-times.
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 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 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 data	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 information archive data	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 pass/pull-in	Command to commercial vehicle to pull into or bypass border inspection station
breach response	This is an Intermodal Freight Shipper's response to a breach or tamper event of their freight equipment. There maybe instructions for handling of the shipment, possible re-routing or pickup.	breach response	This is an Intermodal Freight Shipper's response to a breach or tamper event of their freight equipment. There maybe 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 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, transit service information, weather information, parking information, and other related traveler information.	broadcast traveler traveller information	General traveler traveller information that contains traffic and road conditions, link travel times, incidents, advisories, restrictions, transit service information, weather information, parking information, and other related traveler traveller information.
care facility status	Information regarding facility type and capabilities, facility status, and its ability to admit new patients.	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 and status.	care facility status request	Request for information regarding care facility availability and status.
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-time query or proactively by the source. The query flow is not explicitly shown.	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-time query or proactively by the source. The query flow is not explicitly shown.
clearance notification	Notification that cargo has been cleared through customs.	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 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 drivers license information and carrier safety status.	client verification information	Information about carriers who have made border credential applications such as commercial drivers license information and carrier safety status.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
client verification request	Request for information such as commercial drivers license information and carrier safety status.	client verification request	Request for information such as commercial drivers 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 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 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 vehicles cargo, credentials, and payments.	commercial vehicle data	Information about the commercial vehicles 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 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	This flow safely disables a specific commercial vehicle.
commercial vehicle disable status	This flow provides the status of the disable flag in the commercial vehicle.	commercial vehicle disable status	This flow provides the status of the disable flag in the commercial vehicle.
commercial vehicle measures	Commercial vehicle and driver status measured by on-board ITS equipment.	commercial vehicle measures	Commercial vehicle and driver status measured by on-board ITS equipment.
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.	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.	credential application	Application for commercial vehicle credentials. Authorization for payment is included.
credential fee coordination	Jurisdiction's rates for various credentials (IRP, IFTA, etc.) that are exchanged between agencies.	credential fee coordination	Jurisdiction's rates for various credentials (IRP, IFTA, etc.) that are exchanged between agencies.
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 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.	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.	crew movements	Visual or sensed presence of field crew location within a work zone that is monitored to enhance work zone safety.
crossing call	Pedestrian request to cross the roadway. This may be an overt (e.g., push button) request from a pedestrian or the physical presence of a pedestrian that can be detected by sensors or surveillance systems.	crossing call	Pedestrian request to cross the roadway. This may be an overt (e.g., push button) request from a pedestrian or the physical presence of a pedestrian that can be detected by sensors or surveillance systems.
crossing permission	Signal to pedestrians indicating permission to cross roadway.	crossing permission	Signal to pedestrians indicating permission to cross roadway.
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.	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 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.	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.
cv driver record request	A request for information about a commercial vehicle driver.	cv driver record request	A request for information about a commercial vehicle driver.
cv repair status	Information about the completion of a repair to a commercial vehicle.	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.	CVC Commercial Vehicle Check 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.
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.	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.
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 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.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
CVO inspector 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 inspector 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 in to inspection/verification stop along with inspection results (e. g., LED indicator on transponder or variable message sign).	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 in to 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.).	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.	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.	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 that have been allocated to an incident.	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 that have been allocated to an incident.
demand response passenger and use data	Data collected on board a demand response vehicle relating to the picking up and discharging of passengers.	demand response passenger 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 plan	Plan regarding overall demand responsive transit schedules and deployment.
demand responsive transit request	Request for paratransit support.	demand responsive transit request	Request for paratransit support.
disable commercial vehicle	A request that a specific commercial vehicle should be safely disabled.	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 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.	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.
driver information	General advisory and traffic control information provided to the driver while en route.	driver information	General advisory and traffic control information provided to the driver while en route.
driver inputs	Driver input to the vehicle including configuration data, settings and preferences, interactive requests, and control commands.	driver inputs	Driver input to the vehicle including configuration data, settings and preferences, interactive requests, and control commands.
driver log	A daily log showing hours in service for the current driver.	driver log	A daily log showing hours in service for the current driver.
driver log request	Request for driver log data.	driver log request	Request for driver log data.
driver parking information	Presentation of general parking information to drivers including lot status, parking availability, and directions to available spaces, entrances, and exits.	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 to fleet request	Requests from the driver and vehicle for routing, payment, and enrollment information.
driver updates	Information displayed or otherwise conveyed by the vehicle to the driver.	driver updates	Information displayed or otherwise conveyed by the vehicle to the driver.
electronic lock data	Notification to roadside (via transponder) of the presence and status of electronic cargo locks.	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 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.	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 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 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 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 traveller .
emergency dispatch requests	Emergency vehicle dispatch instructions including incident location and available information concerning the incident.	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 dispatch response	Request for additional emergency dispatch information and provision of en route status.
emergency notification	An emergency request for assistance automatically initiated by a vehicle or originated by a traveler using an in-vehicle or personal device.	emergency notification	An emergency request for assistance automatically initiated by a vehicle or originated by a traveler traveller using an in-vehicle or personal device.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
emergency operations inputs	Emergency operator inputs supporting call taking, dispatch, emergency operations, security monitoring, and other operations and communications center operator functions.	emergency operations inputs	Emergency operator inputs 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.	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.
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 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 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 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 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 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 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 request 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 control request	Special request 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 transit schedule information	Information on transit schedule and service changes that adapt the service to better meet needs of responders and the general public in an emergency situation, including special service schedules supporting evacuation.	emergency transit schedule information	Information on transit schedule and service changes that adapt the service to better meet needs of responders and the general 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 emergency scene. The request may poll for resource availability or request pre-staging, staging, or immediate dispatch of transit resources.	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 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 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 traveller 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 traveller 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 traveler traveller 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 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.	emergency vehicle tracking data	The current location and operating status of the emergency vehicle.
emissions archive data	Air quality and vehicle emissions information that is collected by sensors or derived from models. Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.	emissions archive data	Air quality and vehicle emissions information that is collected by sensors or derived from models. Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.
emissions sensor control	Data used to configure and control vehicle emissions sensors.	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.	emissions violation notification	Notification to enforcement agency of a detected vehicle emissions violation.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
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	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	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 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 snapshots of recent events (e.g., traction control or anti-lock brake system activations) may be reported.	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 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 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.	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 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.	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 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.	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 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	Special event information for travelers travellers. 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 information request	Request for special event information.
event plans	Plans for major events possibly impacting traffic.	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.	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 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 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.	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).	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 and price information	Current transit, parking, and toll fee schedule information.
fare collection data	Fare collection information including the summary of on-board fare system data and financial payment transaction data.	fare collection data	Fare collection information including the summary of on-board 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.	fare management information	Transit fare information and transaction data used to manage transit fare processing on the transit vehicle.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
field device status	Reports from field equipment (sensors, signals, signs, controllers, etc.) which indicate current operational status.	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 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 device status request	User input from field personnel requesting operational status of field equipment (sensors, signals, signs, controllers, etc.).
field equipment status	Identification of field equipment requiring repair and known information about the associated faults.	field equipment status	Identification of field equipment requiring repair and known information about the associated faults.
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 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 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 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, routing information, current vehicle information, and emergency information.	fleet status	This flow represents the visual or auditory interface with ITS equipment containing fleet status information including enrollment status, routing information, current vehicle information, and emergency information.
fleet to driver update	Updated instructions to the driver including dispatch, routing, and special instructions.	fleet to driver update	Updated instructions to the driver including dispatch, routing, and special instructions.
freeway control data	Control commands and operating parameters for ramp meters, mainline metering/lane controls and other systems associated with freeway operations.	freeway control data	Control commands and operating parameters for ramp meters, mainline metering/lane controls and other systems associated with freeway operations.
freeway control status	Current operational status and operating parameters for ramp meters, mainline metering/lane controls and other control equipment associated with freeway operations.	freeway control status	Current operational status and operating parameters for ramp meters, mainline metering/lane controls and other control equipment associated with freeway operations.
freight breach	Information about a breach or tamper event on Freight Equipment which includes identity, type of breach, location, and time.	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, Bill of Lading, and sensor status.	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, Bill of Lading, and sensor status.
freight monitoring parameters	Parameters to configure the Freight Equipment for event reporting and keep alive functions.	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 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 destination; including cargo movement logs, routing information, and cargo ID's.	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 destination; including cargo movement logs, routing information, and cargo ID's.
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 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.	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 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 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 HAZMAT information request	Request for information about a particular hazmat load.
hazmat spill notification	Information provided to emergency response organizations when cargo sensors detect a release of hazardous material. This information will include sensor information, vehicle location and identification, and carrier identification.	hazmat spill notification	Information provided to emergency response organizations when cargo sensors detect a release of hazardous material. This information will include sensor information, vehicle location and 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.	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.	hov 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.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
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 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 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 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 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.	hri 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.	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.	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 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 coordination	Information that supports local management of an incident. It includes resource deployment status, hazardous material 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 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 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	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 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 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	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 response	Interactive acknowledgement and verification of the incident information received, requests for additional information, and general information on incident response status.
incident report	Report of an identified incident including incident location, type, severity and other information necessary to initiate an appropriate incident response.	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 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 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.	incident status	Information gathered at the incident site that more completely characterizes the incident and provides current incident response status.
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.	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 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.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
infrastructure monitoring sensor control	Data used to configure and control infrastructure monitoring sensors.	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.	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.	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, payment information, transit services, parking information, weather information, and other travel-related data updates and confirmations.	interactive traveler traveller information	Traveler Traveller information provided in response to a traveler traveller request. The provided information includes traffic and road conditions, advisories, incidents, 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 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.	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.
intermodal freight traffic confirmation	Confirmation that details concerning the movement of intermodal freight on the roadway network have been received and processed. May also include information on traffic conditions affecting the depot.	intermodal freight traffic confirmation	Confirmation that details concerning the movement of intermodal freight on the roadway network have been received and processed. May also include information on traffic conditions affecting the depot.
intersection blockage notification	Notification that a highway-rail intersection is obstructed and supporting information.	intersection blockage notification	Notification that a highway-rail intersection is obstructed and supporting information.
intersection status	Intersection status including current operational status, signal phase and timing information, intersection geometry, surface conditions, warnings of potential violations or hazardous conditions, and approaching vehicle information. This may include information about the position, velocity, acceleration, and turning status of approaching vehicles.	intersection status	Intersection status including current operational status, signal phase and timing information, intersection geometry, surface conditions, warnings of potential violations or hazardous conditions, and approaching vehicle information. This may include information about the position, velocity, acceleration, and turning status of approaching vehicles.
in-vehicle transaction status	The status of an electronic payment transaction presented to the driver by in-vehicle equipment.	in-vehicle transaction status	The status of an electronic payment transaction presented to the driver by in-vehicle equipment.
ISP coordination	Coordination and exchange of transportation information between centers. This flow allows a broad range of transportation information collected by one ISP to be redistributed to many other ISPs and their clients.	ISP coordination	Coordination and exchange of transportation information between centers centres. This flow allows a broad range of transportation information collected by one ISP to be redistributed to many other ISPs and their clients.
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.	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.
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.	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 inputs	This flow provides inputs to traffic operations dynamic message signs on the types of vehicles to allow in each lane as well as other lane management messages that might be used by traffic operations.	lane management inputs	This flow provides inputs to traffic operations dynamic message signs on the types of vehicles to allow in each lane as well as other lane management messages that might be used by traffic operations.
license request	Request supporting registration data based on license plate read during violation.	license request	Request supporting registration data based on license plate read during violation.
lighting system control data	Information used to configure and control roadside lighting systems.	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.	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 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.	local signal priority request	Request from a vehicle to a signalized intersection for priority at that intersection.
logged vehicle routes	Anticipated route information for guided vehicles, special vehicles (e.g., oversize vehicles) or groups of vehicles (e.g., governor's motorcade) that may require changes in traffic control strategy.	logged vehicle routes	Anticipated route information for guided vehicles, special vehicles (e.g., oversize vehicles) or groups of vehicles (e.g., governor's motorcade) that may require changes in traffic control strategy.
maint and constr 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.	maint and constr 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.
maint and constr administrative request	Requests for maintenance and construction administrative information or services. Requests include: requests to purchasing for equipment and consumables resupply and requests to human resources that manage training and special certification for field crews and other personnel.	maint and constr administrative request	Requests for maintenance and construction administrative information or services. Requests include: requests to purchasing for equipment and consumables resupply and requests to human resources that manage training and special certification for field crews and other personnel.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
maint and constr 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 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.	maint and constr 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 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.
maint and constr 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.	maint and constr center centre personnel inputs	User input from maintenance and construction center centre personnel including routing information, scheduling data, dispatch instructions, device configuration and control, resource allocations, alerts, incident and emergency response plan coordination.
maint and constr 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.	maint and constr 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.
maint and constr dispatch status	Current maintenance and construction status including work data, operator status, crew status, and equipment status.	maint and constr dispatch status	Current maintenance and construction status including work data, operator status, crew status, and equipment status.
maint and constr 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.	maint and constr 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.
maint and constr 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.	maint and constr 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.
maint and constr field personnel inputs	User input from field personnel including current maintenance and construction status information as well as on-board device control.	maint and constr field personnel inputs	User input from field personnel including current maintenance and construction status information as well as on-board device control.
maint and constr 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.	maint and constr 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.
maint and constr material information	Information on materials stored on the vehicle including quantity and current application rate.	maint and constr material information	Information on materials stored on the vehicle including quantity and current application rate.
maint and constr 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.	maint and constr operations information presentation	Presentation of maintenance and construction operations information to center centre 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.
maint and constr resource coordination	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.	maint and constr resource coordination	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.
maint and constr 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.	maint and constr 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.
maint and constr 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.	maint and constr 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.
maint and constr 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.	maint and constr 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.
maint and constr vehicle conditions	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.	maint and constr vehicle conditions	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.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
maint and constr 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.	maint and constr 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.
maint and constr vehicle location data	The current location and related status (e.g., direction and speed) of the maintenance/construction vehicle.	maint and constr vehicle location data	The current location and related status (e.g., direction and speed) of the maintenance/construction vehicle.
maint and constr 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.	maint and constr 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.
maint and constr 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).	maint and constr 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).
maint and constr 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.	maint and constr 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.
maint and constr 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.	maint and constr 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.
maint and constr work performance	Overall project status and work performance information provided to support contract administration.	maint and constr work performance	Overall project status and work performance information provided to support contract administration.
maint and constr 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.	maint and constr 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 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.	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 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.	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 update request	Request for a map update which could include a new underlying map or map layer updates.
map updates	Map update which could include a new underlying static or real-time map or map layer(s) update.	map updates	Map update which could include a new underlying static or real-time map or map layer(s) update.
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 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 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	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 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.	multimodal service data	Multimodal transportation schedules and other service information.
on-board safety data	Safety data measured by on-board sensors. Includes information about the vehicle, vehicle components, cargo, and driver.	on-board safety data	Safety data measured by on-board sensors. Includes information about the vehicle, vehicle components, cargo, and driver.
on-board safety request	Request for on-board vehicle safety data by the roadside equipment.	on-board safety request	Request for on-board vehicle safety data by the roadside equipment.
on-board vehicle data	Information about the commercial vehicle stored on-board (for maintenance purposes, gate access, cargo status, lock status, etc.).	on-board vehicle data	Information about the commercial vehicle stored on-board (for maintenance purposes, gate access, cargo status, lock status, etc.).
on-board vehicle request	Request for on-board vehicle data.	on-board vehicle request	Request for on-board vehicle data.
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.	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 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.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
parking coordination	Information that enables parking management activities to be coordinated between different parking operators or systems in a region.	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 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 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 information	General parking information and status, including current parking availability.
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 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 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 inputs	Instructions for 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 lot reservation confirmation	Confirmation for parking lot reservation.
parking operator inputs	User input from the parking operator to query current status and control the operation of the parking management system.	parking operator inputs	User input from the parking operator to query current status and control the operation of the parking management system.
parking reservations request	Reservation request for parking lot.	parking reservations request	Reservation request for parking lot.
parking status	Presentation of information to the parking operator including operational status and transaction reports.	parking status	Presentation of information to the parking operator including operational status and transaction reports.
pass/pull-in	Command to commercial vehicle to pull into or bypass inspection station.	pass/pull-in	Command to commercial vehicle to pull into or bypass inspection station.
patient status	Information that supports assessment of the patient's condition. Information could include general categorization of patient status, patient vital signs, pertinent medical history, and emergency care information.	patient status	Information that supports assessment of the patient's condition. Information could include general categorization of patient status, patient vital signs, pertinent medical history, 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	Payment of some kind (e.g., toll, parking, fare) by traveler traveller which, in most cases, can be related to a credit account.
payment request	Request for payment from financial institution.	payment request	Request for payment from financial institution.
payment violation notification	Notification to enforcement agency of a toll, parking, or transit fare payment violation.	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.	personal transit information	General and personalized transit information for a particular fixed route, flexible route, or paratransit system.
physical presence	Detection of an obstacle by a vehicle. Obstacle could include animals, other vehicles, pedestrians, rocks in roadway etc.	physical presence	Detection of an obstacle by a vehicle. Obstacle could include animals, other vehicles, pedestrians, rocks in roadway etc.
pollutant levels	Atmospheric pollutant levels as monitored by air quality sensors.	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 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 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 sensor control	Data used to configure and control area pollution and air quality sensors.
pollution state data request	Aggregated emissions data information request.	pollution state data request	Aggregated emissions data information request.
position fix	Information which provides a traveler's or vehicle's geographical position.	position fix	Information which provides a traveler's traveller's or vehicle's geographical position.
pre-arrival notification	Identification of a vehicle or driver that is approaching a border crossing.	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.	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 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.	public health response	Specific information or recommendation on how to treat or respond to an emergency involving biological or other medically related emergency.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
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.	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 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.	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.
railroad advisories	Real-time notification of railway-related incident or advisory.	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.	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.	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 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.	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 bad tag list	Request for list of bad vehicle tag IDs.
request for enforcement	Request for traffic enforcement to address safety issues in a work zone or other special situations.	request for enforcement	Request for traffic enforcement to address safety issues in a work zone or other special situations.
request for payment	Request to deduct cost of service from user's payment account.	request for payment	Request to deduct 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 performance data	User input from the parking operator to request current parking service performance data.
request for right-of-way	Forwarded request from signal prioritization, signal preemption, pedestrian call, multi-modal crossing activation, or other source for right-of-way.	request for right-of-way	Forwarded request from signal prioritization, signal preemption, pedestrian call, multi-modal crossing activation, or other source for right-of-way.
request for service	Driver inputs that summon an emergency response, request a financial transaction, or initiate other services.	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 for vehicle measures	Request for vehicle performance and maintenance data collected by onboard sensors.
request tag data	Request for tag information including credit identity, stored value card cash, etc.	request tag data	Request for tag information including credit identity, stored value card cash, etc.
request transit information	Request for transit service information and current transit status.	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 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 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.	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 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.	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.
road data	Basic road facility and treatment information that supports road conditions forecasts.	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 architecture 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 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 architecture 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 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.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
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 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 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 weather information	Road conditions and weather information that are made available by road maintenance operations to other transportation system operators.	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 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 transaction status	The status of an electronic payment transaction provided directly to the driver via sign or other roadside infrastructure.	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 ITS sensors and used to support advanced vehicle safety and control and road maintenance capabilities.	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 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) 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. This includes information exchanged between a Signal System Master (SSM) and the Signal System Local (SSL) equipment.	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) 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. This includes information exchanged between a Signal System Master (SSM) and the Signal System Local (SSL) 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 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 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 (snow plow schedule and current status).	roadway maintenance status	Summary of maintenance fleet operations affecting the road network. This includes the status of winter maintenance (snow plow 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 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 affect the roadway surface (e.g. de-icing applications).	roadway treatment system control	Control data for remotely located, automated devices, that affect the roadway surface (e.g. de-icing applications).
roadway treatment system status	Current operational status of automated roadway treatment devices (e.g., anti-icing systems).	roadway treatment system status	Current operational status of automated roadway treatment devices (e.g., anti-icing systems).
route assignment	Route assignment information for transit vehicle operator.	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 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 plan	Tailored route provided by ISP in response to a specific request.
route request	Request for a tailored route based on given constraints.	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).	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.	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 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 transportation infrastructure, such as blast shields, exhaust systems, etc.). Status of the systems includes operating condition and current operational state.	safeguard system status	Current operating status of safeguard systems (remotely controlled equipment used to mitigate the impact of incidents on 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 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 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.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
safety inspection request	Request for safety inspection record.	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 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.	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 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.	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 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 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 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 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.	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.
security equipment maintenance status	Current status of security surveillance and sensor field equipment maintenance actions.	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.	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.	selected routes	Routes selected based on route request criteria.
shelter information	Evacuation shelter information including location, hours of operation, special accommodations, and current vacancy/availability information.	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.	short range communications status	Status of the short range communications equipment including the current state or mode of operation and the current equipment status.
signal control data	Information used to configure and control traffic signal systems.	signal control data	Information used to configure and control traffic signal systems.
signal control status	Status of surface street signal controls including operating condition and current operational state.	signal control status	Status of surface street signal controls including operating condition and current operational state.
speed monitoring control	Information used to configure and control automated speed monitoring, speed warning, and speed enforcement systems.	speed monitoring traffic enforcement 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.	speed monitoring traffic enforcement 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.	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.	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.	tag data	Unique tag ID and related vehicle information.
tax filing	Commercial vehicle tax filing data. Authorization for payment is included.	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 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	Threats regarding transportation infrastructure, facilities, or systems detected by a variety of methods (sensors, surveillance, threat analysis of advisories from outside agencies, etc.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
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 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 agency identify possible threats, including biometric image processing support data.	threat support data	Information provided to help receiving agency identify possible threats, including biometric image processing support data.
toll administration requests	Personnel inputs that control system operations, including requests to change toll fees, confirmation that alerts should be provided to toll operators, etc.	toll administration requests	Personnel inputs that control system operations, including requests to change toll fees, confirmation that alerts should be provided to toll operators, etc.
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 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 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 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	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 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 information presentation	Presentation of information to toll center personnel including toll revenues, toll-related reports, operational status information, and alert information.	toll information presentation	Presentation of information to toll center personnel including toll revenues, toll-related reports, operational status information, and alert information.
toll instructions	Information provided to configure and support toll plaza operations including toll pricing 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 information presentation	Information presented to the toll collection point operator, including toll transaction information, alerts, and advisories.
toll operator requests	User input from the toll operator to request information at the toll collection site.	toll operator requests	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 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 request	Request to change pricing, modify restrictions, or modify operations of a toll road facility	toll service change request	Request to change pricing, modify restrictions, or modify operations of a toll road facility
toll service change response	Response to toll service change requests indicating level of compliance with request.	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.	toll transactions	Detailed list of transactions from a toll station.
track status	Current status of the wayside equipment and notification of an arriving train.	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 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 archive data	Information describing the use and vehicle composition on transportation facilities and the traffic control strategies 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 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 coordination	Information transfers that enable remote monitoring and control of traffic management devices. This flow is intended to allow cooperative access to, and control of, field equipment during incidents and special events and during day-to-day operations. This flow also allows 24-hour centers to monitor and control assets of other centers during off-hours, allows system redundancies and fail-over capabilities to be established, and otherwise enables integrated traffic control strategies in a region.	traffic control coordination	Information transfers that enable remote monitoring and control of traffic management devices. This flow is intended to allow cooperative access to, and control of, field equipment during incidents and special events and during day-to-day operations. This flow also allows 24-hour centers to monitor and control assets of other centers during off-hours, allows system redundancies and fail-over capabilities to be established, and otherwise enables integrated traffic control strategies in a region.
traffic control priority request	Request for signal priority at one or more intersections along a particular route.	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 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 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 and the operational status of the surveillance system.	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 and the operational status of the surveillance system.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
traffic information coordination	Traffic information exchanged between TMC's. Normally would include incidents, congestion data, traffic data, signal timing plans, and real-time signal control information.	traffic information coordination	Traffic information exchanged between TMC's. Normally would include incidents, congestion data, traffic data, signal timing plans, and real-time signal control information.
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 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 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 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 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 snapshots of recent events including route information, starts and stops, speed changes, and other information that can be used to estimate traffic conditions.
traffic sensor control	Information used to configure and control traffic sensor systems.	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 and HOV violations.	traffic violation notification	Notification to enforcement agency of a detected traffic violation including speed violations and HOV violations.
transaction status	Response to transaction request. Normally dealing with a request for payment.	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.	transit and fare schedules	Transit service information including routes, schedules, and fare 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 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 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 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 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 and passenger status	Information provided from the traveler traveller 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 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 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 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 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 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 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 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.	transit multimodal information	Transit schedule information for coordination at modal interchange points.
transit operations 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 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 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 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.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
transit request confirmation	Confirmation of a request for transit information or service.	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 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 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 information shared between local/regional transit organizations.	transit service coordination	Schedule coordination information shared between local/regional transit organizations.
transit system data	Current transit system operations information indicating current transit routes, 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 data	Current transit system operations information indicating current transit routes, 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 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 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 traveller information	Transit information prepared to support transit users and other traveler travellers. 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 traveller information coordination	Transit schedules, real-time arrival information, fare schedules, and general transit service information shared between transit organizations to support transit traveler traveller information systems.
transit traveler request	Request by a Transit traveler to summon assistance, request transit information, or request any other transit services.	transit traveler traveller request	Request by a Transit traveler traveller to summon assistance, request transit information, or request any other transit services.
transit vehicle conditions	Operating conditions of transit vehicle (e.g., engine running, oil pressure, fuel level and usage).	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 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 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 measures	Transit vehicle status measured by on-board ITS equipment.
transit vehicle operator authentication information	Information regarding on-board transit operator authentication	transit vehicle operator authentication information	Information regarding on-board transit operator authentication
transit vehicle operator authentication update	Results of authentication process or update of on-board authentication database.	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 availability	Transit vehicle operator availability data that can be used to develop vehicle operator assignments and detailed operations schedules.
transit vehicle operator display	Visual and audible 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 display	Visual and audible outputs to the transit vehicle operator including vehicle surveillance information, alarm information, vehicle system status, information from the operations center centre, 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 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 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.	transit vehicle schedule performance	Estimated times of arrival and anticipated schedule deviations reported by a transit vehicle.
transportation border clearance assessment	Notification regarding the granting of permission for commercial freight shipment to enter the U.S. Includes directions for commercial driver to proceed to nearest vehicle weigh and inspection station for further review if required.	transportation border clearance assessment	Notification regarding the granting of permission for commercial freight shipment to enter the U.S. Includes directions for commercial driver to proceed to nearest vehicle weigh 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 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 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	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.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
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 required, the desired spatial resolution of the information, and time horizon.	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 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	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 information request	Requests for travel service information. This flow supports initial registration of service providers and requests for additional traveler traveller 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 reservation request	Reservation request for traveler traveller 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 service reservations	Traveler Traveller service (e.g., for a hotel or restaurant) reservation information and status, including information on associated billing transactions, when applicable.
traveler alerts	Traveler information alerts reporting congestion, incidents, adverse road or weather conditions, 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.	traveler traveller alerts	Traveler Traveller information alerts reporting congestion, incidents, adverse road or weather conditions, parking availability, transit service delays or interruptions, and other information that may impact the traveler traveller. Relevant alerts are provided based on traveler traveller-supplied profile information including trip characteristics and preferences.
traveler 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 traveller archive data	Data associated with traveler traveller information services including service requests, facility usage, rideshare, routing, and traveler traveller 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 traveller card information	The traveler traveller 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 traveller card update	Information updated concerning traveler's traveller'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 traveller information for media	General traveler traveller 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 traveller inputs	User input from a traveler traveller to summon assistance, request travel information, make a reservation, or request any other traveler traveller service.
traveler interface updates	Visual or audio information (e.g., routes, messages, guidance, emergency information) that is provided to the traveler.	traveler traveller interface updates	Visual or audio information (e.g., routes, messages, guidance, emergency information) that is provided to the traveler traveller.
traveler profile	Information about a traveler including equipment capabilities, personal preferences, and traveler alert subscriptions.	traveler traveller profile	Information about a traveler traveller including equipment capabilities, personal preferences, and traveler traveller 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.	traveler traveller request	A request for traveler traveller 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.
trip confirmation	Acknowledgement by the driver/traveler of acceptance of a trip plan with associated personal and payment information required to confirm reservations.	trip confirmation	Acknowledgement by the driver/ traveler traveller of acceptance of a trip plan with associated personal and payment information required to confirm reservations.
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 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	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 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).	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).
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 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 log request	Request for trip log.
trip plan	A travel itinerary identifying a route and associated traveler information and instructions identifying recommended modes and transfer information, ride sharing options, and transit and parking reservation information.	trip plan	A travel itinerary identifying a route and associated traveler traveller information and instructions identifying recommended modes and transfer information, ride sharing options, and transit and parking reservation information.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
trip request	Request for trip planning services that identifies the trip origin, destination(s), timing, preferences, and constraints. The request may also include a request for transit and parking reservations and ridesharing options associated with the trip.	trip request	Request for trip planning services that identifies the trip origin, destination(s), timing, preferences, and constraints. The request may also include a request for transit and parking reservations and ridesharing options associated with the trip.
vehicle characteristics	The physical or visible characteristics of an individual vehicle that can be measured to classify a vehicle and imaged to uniquely identify a vehicle.	vehicle characteristics	The physical or visible characteristics of an individual vehicle that can be measured to classify a vehicle and imaged to uniquely identify a vehicle.
vehicle control	Vehicular control commands	vehicle control	Vehicular control commands
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 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 components, and notification of any identified malfunctions.	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 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 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 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 detected by the vehicle.	vehicle occupancy	The number of occupants detected by the 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).	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).
vehicle payment information	Information provided for payment of tolls and 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.	vehicle payment information	Information provided for payment of tolls and 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.
vehicle payment request	Request for information supporting toll and parking payments.	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 payment update	Data written to vehicle equipment to support electronic toll collection or parking payment.
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 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., current signal states, grade crossing information, local traffic and road conditions, advisories, and detours).	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., current signal states, grade crossing information, local traffic and road conditions, advisories, and detours).
video surveillance control	Information used to configure and control video surveillance systems.	video surveillance control	Information used to configure and control video surveillance systems.
violation notification	Notification to enforcement agency of a violation. The violation notification flow describes the statute or regulation that was violated and how it was violated (e. g., overweight on specific axle by xxx pounds or which brake was out of adjustment and how far out of adjustment it was). A violation differs from a citation because it is not adjudicated by the courts.	violation notification	Notification to enforcement agency of a violation. The violation notification flow describes the statute or regulation that was violated and how it was violated (e. g., overweight on specific axle by xxx pounds or which brake was out of adjustment and how far out of adjustment it was). A violation differs from a citation because it is not adjudicated by the courts.
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 architecture flow may be specially formatted for voice-based traveler information.	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 architecture flow may be specially formatted for voice-based traveler traveller 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 traveller information	Traveler Traveller information sent to the telecommunications systems for traveler traveller information terminator. This flow may represent the bulk transfer of traveler traveller information, including traffic conditions, incident information, transit information and weather and road condition information. It may be specially formatted for voice-based traveler traveller information.

Appendix C3 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Information Flows

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
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.	voice-based traveler traveller request	The electronic traveler traveller information request from the telecommunications systems for traveler traveller information terminator. It may be specifically formatted for voice-based traveler traveller 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 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.).	volume weather information	Accumulated forecasted and current weather data (e.g., temperature, pressure, wind speed, wind direction, humidity, precipitation, visibility, light conditions, etc.).
widearea statistical pollution information	Aggregated region-wide measured emissions data and possible pollution incident information.	widearea 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 suggested changes that are exchanged as work plans are coordinated and finalized.	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 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 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 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 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 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 maintenance and construction 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 field crew into the travel lanes.	work zone warning	Warnings provided to maintenance and construction 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 field crew 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 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 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.	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.
yellow pages 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.	yellow pages business directory 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 traveller.
yellow pages request	Request for travel service information including tourist attractions, lodging, restaurants, 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.	yellow pages business directory request	Request for travel service information including tourist attractions, lodging, restaurants, 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.

APPENDIX

C-4 *FUNCTIONAL OBJECT TEXT COMPARISON*

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Advanced Rail Crossing	This equipment package manages highway traffic at highway-rail intersections (HRIs) where operational requirements demand advanced features (e.g., where rail operational speeds are greater than 80 miles per hour). It includes all capabilities from the Standard Rail Crossing equipment package and augments these with additional safety features. The active warning systems supported by this equipment package include positive barrier systems which preclude entrance into the intersection when the barriers are activated. Like the Standard package, the HRI equipment is activated on notification by wayside interface equipment which detects, or communicates with the approaching train. In this equipment package, additional information about the arriving train is also provided by the wayside interface equipment so that the train's direction of travel, its estimated time of arrival, and the estimated duration of closure may be derived. This enhanced information may be conveyed to the driver prior to, or in context with, warning system activation. This equipment package also includes detection capabilities which enable it to detect an entrapped or otherwise immobilized vehicle within the HRI and provide an immediate notification to the wayside interface equipment and traffic management.	Advanced Rail Crossing	This equipment package manages highway traffic at highway-rail intersections (HRIs) where operational requirements demand advanced features (e.g., where rail operational speeds are greater than 80 miles per hour). It includes all capabilities from the Standard Rail Crossing equipment package and augments these with additional safety features. The active warning systems supported by this equipment package include positive barrier systems which preclude entrance into the intersection when the barriers are activated. Like the Standard package, the HRI equipment is activated on notification by wayside interface equipment which detects, or communicates with the approaching train. In this equipment package, additional information about the arriving train is also provided by the wayside interface equipment so that the train's direction of travel, its estimated time of arrival, and the estimated duration of closure may be derived. This enhanced information may be conveyed to the driver prior to, or in context with, warning system activation. This equipment package also includes detection capabilities which enable it to detect an entrapped or otherwise immobilized vehicle within the HRI and provide an immediate notification to the wayside interface equipment and traffic management.
Barrier System Management	This equipment package remotely monitors and controls barrier systems for transportation facilities and infrastructure under control of center personnel. Barrier systems include automatic or remotely controlled gates, barriers and other access control systems. The equipment package also provides an interface to other centers to allow monitoring and control of the barriers from other centers (e.g., public safety or emergency operations centers).	Barrier System Management	This equipment package remotely monitors and controls barrier systems for transportation facilities and infrastructure under control of center <u>centre</u> personnel. Barrier systems include automatic or remotely controlled gates, barriers and other access control systems. The equipment package also provides an interface to other centers <u>centres</u> to allow monitoring and control of the barriers from other centers <u>centres</u> (e.g., public safety or emergency operations centers <u>centres</u>).
Basic Information Broadcast	This equipment package disseminates traveler information including traffic and road conditions, incident information, maintenance and construction information, event information, transit information, parking information, and weather information. The same information is broadcast to all equipped traveler interface systems and vehicles.	Basic Information Broadcast	This equipment package disseminates traveler <u>traveller</u> information including traffic and road conditions, incident information, maintenance and construction information, event information, transit information, parking information, and weather information. The same information is broadcast to all equipped traveler <u>traveller</u> interface systems and vehicles.
Basic Vehicle Reception	This equipment package provides the capability for drivers to receive basic transportation information including traffic and road conditions, incident information, maintenance and construction information, event information, transit information, parking information, weather information, and broadcast alerts.	Basic Vehicle Reception	This equipment package provides the capability for drivers to receive basic transportation information including traffic and road conditions, incident information, maintenance and construction information, event information, transit information, parking information, weather information, and broadcast alerts.
Center Secure Area Alarm Support	This equipment package receives traveler or transit vehicle operator alarm messages, notifies the system operator, and provides acknowledgement of alarm receipt back to the originator of the alarm. The alarms received can be generated by silent or audible alarm systems and may originate from public areas (e.g. transit stops, park and ride lots, transit stations, rest areas) or transit vehicles. The nature of the emergency may be determined based on the information in the alarm message as well as other inputs.	Center <u>Centre</u> Secure Area Alarm Support	This equipment package receives traveler <u>traveller</u> or transit vehicle operator alarm messages, notifies the system operator, and provides acknowledgement of alarm receipt back to the originator of the alarm. The alarms received can be generated by silent or audible alarm systems and may originate from public areas (e.g. transit stops, park and ride lots, transit stations, rest areas) or transit vehicles. The nature of the emergency may be determined based on the information in the alarm message as well as other inputs.
Center Secure Area Sensor Management	This equipment package manages sensors that monitor secure areas in the transportation system, processes the collected data, performs threat analysis in which data is correlated with other sensor, surveillance, and advisory inputs, and then disseminates resultant threat information to emergency personnel and other agencies. In response to identified threats, the operator may request activation of barrier and safeguard systems to preclude an incident, control access during and after an incident or mitigate impact of an incident. The sensors may be in secure areas frequented by travelers (i.e., transit stops, transit stations, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) or around transportation infrastructure such as bridges, tunnels and transit railways or guideways. The types of sensors include acoustic, threat (e.g. chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors), infrastructure condition and integrity, motion and object sensors.	Center <u>Centre</u> Secure Area Sensor Management	This equipment package manages sensors that monitor secure areas in the transportation system, processes the collected data, performs threat analysis in which data is correlated with other sensor, surveillance, and advisory inputs, and then disseminates resultant threat information to emergency personnel and other agencies. In response to identified threats, the operator may request activation of barrier and safeguard systems to preclude an incident, control access during and after an incident or mitigate impact of an incident. The sensors may be in secure areas frequented by traveler <u>travellers</u> (i.e., transit stops, transit stations, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) or around transportation infrastructure such as bridges, tunnels and transit railways or guideways. The types of sensors include acoustic, threat (e.g. chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors), infrastructure condition and integrity, motion and object sensors.
Center Secure Area Surveillance	This equipment package monitors surveillance inputs from secure areas in the transportation system. The surveillance may be of secure areas frequented by travelers (i.e., transit stops, transit stations, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) or around transportation infrastructure such as bridges, tunnels and transit railways or guideways. It provides both video and audio surveillance information to emergency personnel and automatically alerts emergency personnel of potential incidents.	Center <u>Centre</u> Secure Area Surveillance	This equipment package monitors surveillance inputs from secure areas in the transportation system. The surveillance may be of secure areas frequented by traveler <u>travellers</u> (i.e., transit stops, transit stations, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.) or around transportation infrastructure such as bridges, tunnels and transit railways or guideways. It provides both video and audio surveillance information to emergency personnel and automatically alerts emergency personnel of potential incidents.
Citation and Accident Electronic Recording	The equipment package documents accidents, citations, and violations identified during roadside safety inspections and forwards the information to the Commercial Vehicle Administration Subsystem for processing. It collects data from the vehicle to help characterize the circumstances surrounding the accident.	Citation and Accident Electronic Recording	The equipment package documents accidents, citations, and violations identified during roadside safety inspections and forwards the information to the Commercial Vehicle Administration Subsystem for processing. It collects data from the vehicle to help characterize the circumstances surrounding the accident.
Collect Traffic Surveillance	This equipment package remotely monitors and controls traffic sensors and surveillance (e.g., CCTV) equipment, and collects, processes and stores the collected traffic data. Current traffic information and other real-time transportation information is also collected from other centers. The collected information is provided to traffic operations personnel and made available to other centers.	Collect Traffic Surveillance	This equipment package remotely monitors and controls traffic sensors and surveillance (e.g., CCTV) equipment, and collects, processes and stores the collected traffic data. Current traffic information and other real-time transportation information is also collected from other centers <u>centres</u> . The collected information is provided to traffic operations personnel and made available to other centers <u>centres</u> .

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Commercial Vehicle and Freight Security	This equipment package provides for the security of the commercial vehicle and the freight that it carries by detecting breaches such as seals or locks being broken into by unauthorized personnel and/or any other unauthorized tampering. In addition, this equipment package monitors the commercial vehicle driver and compares it with the planned driver for the vehicle. In a similar manner, the driver and vehicle that have been assigned to move freight are monitored and compared with the planned assignment for that freight. In all cases, any deviations to the planned assignments and any breach or tamper events are reported to the Emergency Management Subsystem.	Commercial Vehicle and Freight Security	This equipment package provides for the security of the commercial vehicle and the freight that it carries by detecting breaches such as seals or locks being broken into by unauthorized personnel and/or any other unauthorized tampering. In addition, this equipment package monitors the commercial vehicle driver and compares it with the planned driver for the vehicle. In a similar manner, the driver and vehicle that have been assigned to move freight are monitored and compared with the planned assignment for that freight. In all cases, any deviations to the planned assignments and any breach or tamper events are reported to the Emergency Management Subsystem.
Credentials and Taxes Administration	This equipment package issues credentials, collects fees and taxes, and supports enforcement of credential requirements. It manages driver licensing. It communicates with the Fleet and Freight Management Subsystems associated with the motor carriers to process credentials applications and collect fuel taxes, weight/distance taxes, and other taxes and fees associated with commercial vehicle operations. The subsystem also receives applications for, and issues special Oversize/Overweight and HAZMAT permits in coordination with other cognizant authorities. This equipment package communicates with similar packages in other jurisdictions to exchange credentials database information. This equipment package also exchanges hazmat route restrictions information, and provides a clearinghouse for this information that can be shared with Map Update Providers, Fleet and Freight Management subsystems and Information Service Providers.	Credentials and Taxes Administration	This equipment package issues credentials, collects fees and taxes, and supports enforcement of credential requirements. It manages driver licensing. It communicates with the Fleet and Freight Management Subsystems associated with the motor carriers to process credentials applications and collect fuel taxes, weight/distance taxes, and other taxes and fees associated with commercial vehicle operations. The subsystem also receives applications for, and issues special Oversize/Overweight and HAZMAT permits in coordination with other cognizant authorities. This equipment package communicates with similar packages in other jurisdictions to exchange credentials database information. This equipment package also exchanges hazmat route restrictions information, and provides a clearinghouse for this information that can be shared with Map Update Providers, Fleet and Freight Management subsystems and Information Service Providers.
CV Data Collection	This equipment package collects and stores commercial vehicle information that is collected in the course of Commercial Vehicle Administration Subsystem operations. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.	CV Data Collection	This equipment package collects and stores commercial vehicle information that is collected in the course of Commercial Vehicle Administration Subsystem operations. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.
CV Information Exchange	This equipment package supports the exchange of safety and credentials data among jurisdiction. The package also supports the exchange of safety and credentials data between systems (for example, an administrative center and the roadside check facilities) within a single jurisdiction. Data are collected from multiple authoritative sources and packaged into snapshots (top-level summary and critical status information) and profiles (detailed and historical data). Data is made available to fleet operators and other information requestors.	CV Information Exchange	This equipment package supports the exchange of safety and credentials data among jurisdiction. The package also supports the exchange of safety and credentials data between systems (for example, an administrative center and the roadside check facilities) within a single jurisdiction. Data are collected from multiple authoritative sources and packaged into snapshots (top-level summary and critical status information) and profiles (detailed and historical data). Data is made available to fleet operators and other information requestors.
CV Safety and Security Administration	This equipment package provides commercial vehicle safety and security criteria to roadside check facilities, collects and reviews safety and security data from the field and distributes safety and security information to other centers, carriers, and enforcement agencies. It supports the collection and review of carrier and driver safety and security data and supports determination of the carrier and driver safety and security ratings. It clears the out-of-service status when the responsible carrier or driver reports that deficiencies flagged during inspections have been corrected.	CV Safety and Security Administration	This equipment package provides commercial vehicle safety and security criteria to roadside check facilities, collects and reviews safety and security data from the field and distributes safety and security information to other centers , carriers, and enforcement agencies. It supports the collection and review of carrier and driver safety and security data and supports determination of the carrier and driver safety and security ratings. It clears the out-of-service status when the responsible carrier or driver reports that deficiencies flagged during inspections have been corrected.
Driver Safety Monitoring System	This equipment package monitors the driver's condition and warns the driver of potential dangers. This equipment package includes driver sensors to assess the suitability of the driver (e.g., fitness and alertness) to assume manual control of the vehicle.	Driver Safety Monitoring System	This equipment package monitors the driver's condition and warns the driver of potential dangers. This equipment package includes driver sensors to assess the suitability of the driver (e.g., fitness and alertness) to assume manual control of the vehicle.
Driver Visibility Improvement System	The equipment package augments the driver's ability to see objects in the vehicle path in conditions where visibility is poor (e.g., bad weather, night driving, etc.). These capabilities are provided using on-board sensors (e.g., an infrared sensor system) to create images that are displayed to the driver (e.g., using a heads up display).	Driver Visibility Improvement System	The equipment package augments the driver's ability to see objects in the vehicle path in conditions where visibility is poor (e.g., bad weather, night driving, etc.). These capabilities are provided using on-board sensors (e.g., an infrared sensor system) to create images that are displayed to the driver (e.g., using a heads up display).
Emergency Call-Taking	This equipment package supports the emergency call-taker, collecting available information about the caller and the reported emergency, and forwarding this information to other equipment packages that formulate and manage the emergency response. This equipment package receives 9-1-1, 7-digit local access, and motorist call-box calls and interfaces to other agencies to assist in the verification and assessment of the emergency and to forward the emergency information to the appropriate response agency.	Emergency Call-Taking	This equipment package supports the emergency call-taker, collecting available information about the caller and the reported emergency, and forwarding this information to other equipment packages that formulate and manage the emergency response. This equipment package receives 9-1-1, 7-digit local access, and motorist call-box calls and interfaces to other agencies to assist in the verification and assessment of the emergency and to forward the emergency information to the appropriate response agency.
Emergency Commercial Vehicle Response	This equipment package identifies and initiates a response to commercial vehicle and freight equipment related emergencies. These emergencies may include incidents involving hazardous materials as well as the detection of non-permitted transport of security sensitive hazmat. The equipment package identifies the location of the vehicle, the nature of the incident, the route information, and information concerning the freight itself. The information supports the determination of the response and identifies the responding agencies to notify. As part of the response, this equipment package can request Fleet and Freight Management to disable a specific vehicle in their fleet.	Emergency Commercial Vehicle Response	This equipment package identifies and initiates a response to commercial vehicle and freight equipment related emergencies. These emergencies may include incidents involving hazardous materials as well as the detection of non-permitted transport of security sensitive hazmat. The equipment package identifies the location of the vehicle, the nature of the incident, the route information, and information concerning the freight itself. The information supports the determination of the response and identifies the responding agencies to notify. As part of the response, this equipment package can request Fleet and Freight Management to disable a specific vehicle in their fleet.
Emergency Data Collection	This equipment package collects and stores emergency information that is collected in the course of operations by the Emergency Management Subsystem. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.	Emergency Data Collection	This equipment package collects and stores emergency information that is collected in the course of operations by the Emergency Management Subsystem. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Emergency Dispatch	This equipment package tracks the location and status of emergency vehicles and dispatches these vehicles to incidents. Pertinent incident information is gathered from the public and other public safety agencies (see the Emergency Call-Taking equipment package) and relayed to the responding units. Incident status and the status of the responding units is tracked so that additional units can be dispatched and/or unit status can be returned to available when the incident is cleared and closed.	Emergency Dispatch	This equipment package tracks the location and status of emergency vehicles and dispatches these vehicles to incidents. Pertinent incident information is gathered from the public and other public safety agencies (see the Emergency Call-Taking equipment package) and relayed to the responding units. Incident status and the status of the responding units is tracked so that additional units can be dispatched and/or unit status can be returned to available when the incident is cleared and closed.
Emergency Early Warning System	This equipment package monitors alerting and advisory systems, information collected by ITS surveillance and sensors, and reports from other agencies and uses this information to identify potential, imminent, or in-progress major incidents or disasters. Notification is provided to other equipment packages that provide the emergency response, including public notification using ITS traveler information systems, where appropriate.	Emergency Early Warning System	This equipment package monitors alerting and advisory systems, information collected by ITS surveillance and sensors, and reports from other agencies and uses this information to identify potential, imminent, or in-progress major incidents or disasters. Notification is provided to other equipment packages that provide the emergency response, including public notification using ITS traveler traveller information systems, where appropriate.
Emergency Environmental Monitoring	This equipment package collects current and forecast road conditions and surface weather information from a variety of sources. The collected environmental information is monitored and presented to the operator and used to more effectively manage incidents.	Emergency Environmental Monitoring	This equipment package collects current and forecast road conditions and surface weather information from a variety of sources. The collected environmental information is monitored and presented to the operator and used to more effectively manage incidents.
Emergency Evacuation Support	This equipment package coordinates evacuation plans among allied agencies and manages evacuation and reentry of a population in the vicinity of a disaster or other emergency that poses a risk to public safety. Where appropriate, the affected population is evacuated in shifts, using more than one evacuation route, and including several evacuation destinations to spread demand and thereby expedite the evacuation. All affected jurisdictions (e.g., states and counties) at the evacuation origin, evacuation destination, and along the evacuation route are informed of the plan. The public is provided with real-time evacuation guidance including basic information to assist potential evacuees in determining whether evacuation is necessary. Resource requirements are forecast based on the evacuation plans, and the necessary resources are located, shared between agencies if necessary, and deployed at the right locations at the appropriate times. The evacuation and reentry status are monitored and used to refine the plan and resource allocations during the evacuation and subsequent reentry. This equipment package communicates with public health systems to develop evacuation plans and recommended strategies for disasters and evacuation scenarios involving biological or other medical hazards.	Emergency Evacuation Support	This equipment package coordinates evacuation plans among allied agencies and manages evacuation and reentry of a population in the vicinity of a disaster or other emergency that poses a risk to public safety. Where appropriate, the affected population is evacuated in shifts, using more than one evacuation route, and including several evacuation destinations to spread demand and thereby expedite the evacuation. All affected jurisdictions (e.g., states provinces and counties) at the evacuation origin, evacuation destination, and along the evacuation route are informed of the plan. The public is provided with real-time evacuation guidance including basic information to assist potential evacuees in determining whether evacuation is necessary. Resource requirements are forecast based on the evacuation plans, and the necessary resources are located, shared between agencies if necessary, and deployed at the right locations at the appropriate times. The evacuation and reentry status are monitored and used to refine the plan and resource allocations during the evacuation and subsequent reentry. This equipment package communicates with public health systems to develop evacuation plans and recommended strategies for disasters and evacuation scenarios involving biological or other medical hazards.
Emergency Response Management	This equipment package provides the strategic emergency response capabilities and broad inter-agency interfaces that are implemented for extraordinary incidents and disasters that require response from outside the local community. It provides the functional capabilities and interfaces commonly associated with Emergency Operations Centers. This equipment package develops and stores emergency response plans and manages overall coordinated response to emergencies. It monitors real-time information on the state of the regional transportation system including current traffic and road conditions, weather conditions, special event and incident information. It tracks the availability of resources and assists in the appropriate allocation of these resources for a particular emergency response. This equipment package provides coordination between multiple allied agencies before and during emergencies to implement emergency response plans and track progress through the incident. It also coordinates with the public through the Emergency Telecommunication Systems (e.g., Reverse 911). This equipment package coordinates with public health systems to provide the most appropriate response for emergencies involving biological or other medical hazards.	Emergency Response Management	This equipment package provides the strategic emergency response capabilities and broad inter-agency interfaces that are implemented for extraordinary incidents and disasters that require response from outside the local community. It provides the functional capabilities and interfaces commonly associated with Emergency Operations Centers Centres. This equipment package develops and stores emergency response plans and manages overall coordinated response to emergencies. It monitors real-time information on the state of the regional transportation system including current traffic and road conditions, weather conditions, special event and incident information. It tracks the availability of resources and assists in the appropriate allocation of these resources for a particular emergency response. This equipment package provides coordination between multiple allied agencies before and during emergencies to implement emergency response plans and track progress through the incident. It also coordinates with the public through the Emergency Telecommunication Systems (e.g., Reverse 911). This equipment package coordinates with public health systems to provide the most appropriate response for emergencies involving biological or other medical hazards.
Emergency Routing	This equipment package supports routing of emergency vehicles and enlists support from the Traffic Management Subsystem to facilitate travel along these routes. Routes may be determined by this equipment package based on real-time traffic information and road conditions or routes may be provided by the Traffic Management Subsystem on request. Vehicles are tracked and routes are based on current vehicle location. This equipment package may coordinate with the Traffic Management Subsystem to provide preemption or otherwise adapt the traffic control strategy along the selected route.	Emergency Routing	This equipment package supports routing of emergency vehicles and enlists support from the Traffic Management Subsystem to facilitate travel along these routes. Routes may be determined by this equipment package based on real-time traffic information and road conditions or routes may be provided by the Traffic Management Subsystem on request. Vehicles are tracked and routes are based on current vehicle location. This equipment package may coordinate with the Traffic Management Subsystem to provide preemption or otherwise adapt the traffic control strategy along the selected route.
Emergency Transportation Operations Data Collection	This equipment package collects real-time information on the state of the regional transportation system for operational use by the center. It includes communication and data processing capabilities that provide real-time access to regional transportation information that is stored in a regional repository. This equipment package establishes communications with the repository, requests or subscribes to information relevant to the center, receives and processes the information, and then distributes the information to other equipment packages and the system operator for use. Although request and subscription flows are not explicitly included in the National ITS Architecture, interactive data services are supported by this equipment package.	Emergency Transportation Operations Data Collection	This equipment package collects real-time information on the state of the regional transportation system for operational use by the center centre. It includes communication and data processing capabilities that provide real-time access to regional transportation information that is stored in a regional repository. This equipment package establishes communications with the repository, requests or subscribes to information relevant to the center centre, receives and processes the information, and then distributes the information to other equipment packages and the system operator for use. Although request and subscription flows are not explicitly included in the National ITS Architecture for Canada, interactive data services are supported by this equipment package.

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Emissions Data Collection	This equipment package collects and stores air quality and emissions management information that is collected in the course of Emissions Management Subsystem operations. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.	Emissions Data Collection	This equipment package collects and stores air quality and emissions management information that is collected in the course of Emissions Management Subsystem operations. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.
Emissions Data Management	This equipment package collects and stores air quality and vehicle emissions information by remotely monitoring and controlling area wide and point sensors. General air quality measures are distributed as general traveler information and also may be used for in demand management programs. Collected roadside emissions are analyzed and used to detect, identify, and notify concerned parties regarding vehicles that exceed emissions standards.	Emissions Data Management	This equipment package collects and stores air quality and vehicle emissions information by remotely monitoring and controlling area wide and point sensors. General air quality measures are distributed as general traveler traveller information and also may be used for in demand management programs. Collected roadside emissions are analyzed and used to detect, identify, and notify concerned parties regarding vehicles that exceed emissions standards.
Field Barrier System Control	This equipment package includes the field equipment that controls barrier systems used to control access to transportation facilities and infrastructure. Barrier systems include automatic or remotely controlled gates, barriers and other access control systems.	Field Barrier System Control	This equipment package includes the field equipment that controls barrier systems used to control access to transportation facilities and infrastructure. Barrier systems include automatic or remotely controlled gates, barriers and other access control systems.
Field Safeguard System Control	This equipment package includes field equipment that controls safeguard systems for transportation facilities and infrastructure. Safeguard systems include blast shields, exhaust systems and other automatic or remotely controlled systems intended to mitigate the impact of an incident.	Field Safeguard System Control	This equipment package includes field equipment that controls safeguard systems for transportation facilities and infrastructure. Safeguard systems include blast shields, exhaust systems and other automatic or remotely controlled systems intended to mitigate the impact of an incident.
Field Secure Area Sensor Monitoring	This equipment package includes sensors that monitor conditions of secure areas including facilities (e.g. transit yards) and transportation infrastructure (e.g. bridges, tunnels, interchanges, and transit railways or guideways). A range of acoustic, environmental threat (e.g. chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors), infrastructure condition and integrity and motion and object sensors are included.	Field Secure Area Sensor Monitoring	This equipment package includes sensors that monitor conditions of secure areas including facilities (e.g. transit yards) and transportation infrastructure (e.g. bridges, tunnels, interchanges, and transit railways or guideways). A range of acoustic, environmental threat (e.g. chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors), infrastructure condition and integrity and motion and object sensors are included.
Field Secure Area Surveillance	This equipment package includes video and audio surveillance equipment that monitors conditions of secure areas including facilities (e.g. transit yards) and transportation infrastructure (e.g. as bridges, tunnels, interchanges, and transit railways or guideways). It provides the surveillance information to the Emergency Management Subsystem for possible threat detection. The equipment package also provides local processing of the video or audio information, providing processed or analyzed results to the Emergency Management Subsystem. This equipment package provides the same functions as the Traveler Secure Area Surveillance equipment package.	Field Secure Area Surveillance	This equipment package includes video and audio surveillance equipment that monitors conditions of secure areas including facilities (e.g. transit yards) and transportation infrastructure (e.g. as bridges, tunnels, interchanges, and transit railways or guideways). It provides the surveillance information to the Emergency Management Subsystem for possible threat detection. The equipment package also provides local processing of the video or audio information, providing processed or analyzed results to the Emergency Management Subsystem. This equipment package provides the same functions as the Traveler Traveller Secure Area Surveillance equipment package.
Fleet Administration	This equipment package provides vehicle tracking, dispatch, and reporting capabilities to fleet management center personnel. It gathers current road conditions and traffic information, prepares vehicle routes, and provides a fleet interface for toll collection. It also provides route plan information for network performance evaluation. As part of the tracking function, this equipment package monitors commercial vehicle location, compares it against the known route and notifies the Emergency Management Subsystem and Fleet-Freight Manager of any deviations, including HAZMAT route restriction violations. This equipment package supports pre-hiring checks for potential drivers and monitors the performance of each driver who is hired. It also supports ongoing monitoring of the company's safety performance.	Fleet Administration	This equipment package provides vehicle tracking, dispatch, and reporting capabilities to fleet management center centre personnel. It gathers current road conditions and traffic information, prepares vehicle routes, and provides a fleet interface for toll collection. It also provides route plan information for network performance evaluation. As part of the tracking function, this equipment package monitors commercial vehicle location, compares it against the known route and notifies the Emergency Management Subsystem and Fleet-Freight Manager of any deviations, including HAZMAT route restriction violations. This equipment package supports pre-hiring checks for potential drivers and monitors the performance of each driver who is hired. It also supports ongoing monitoring of the company's safety performance.
Fleet Credentials and Taxes Management and Reporting	This equipment package provides the capability to purchase credentials, file taxes and trip reports electronically, and perform electronic enrollment in expedited border crossing programs. It tracks and manages credentials and provides electronic interfaces to appropriate state and federal commercial vehicle administration centers.	Fleet Credentials and Taxes Management and Reporting	This equipment package provides the capability to purchase credentials, file taxes and trip reports electronically, and perform electronic enrollment in expedited border crossing programs. It tracks and manages credentials and provides electronic interfaces to appropriate state provincial and federal commercial vehicle administration centers centres.
Fleet HAZMAT Management	This equipment package manages hazardous materials shipments. In the event of an incident, it notifies the Emergency Management Subsystem, providing information on the nature of the cargo and the vehicle equipment.	Fleet HAZMAT Management	This equipment package manages hazardous materials shipments. In the event of an incident, it notifies the Emergency Management Subsystem, providing information on the nature of the cargo and the vehicle equipment.
Fleet Maintenance Management	This equipment package tracks and monitors diagnostic results, vehicle mileage, inspection records, and repair and service records collected from a commercial vehicle fleet equipped with on-board monitoring equipment. The data is used to develop preventative maintenance and repair schedules and repair and service records are maintained.	Fleet Maintenance Management	This equipment package tracks and monitors diagnostic results, vehicle mileage, inspection records, and repair and service records collected from a commercial vehicle fleet equipped with on-board monitoring equipment. The data is used to develop preventative maintenance and repair schedules and repair and service records are maintained.
Freight Administration and Management	This equipment package manages the movement of freight from source to destination via links to the freight equipment, intermodal freight shippers, and depots. It interfaces to intermodal freight shippers to setup and schedule transportation and coordinates with intermodal freight depots to coordinate the shipment. It coordinates with the appropriate government agencies to expedite the movement of trucks, their drivers, and their cargo across international borders. The equipment package monitors the status of the freight and freight equipment (container, trailer, or chassis) and monitors freight location and compares it against the planned route.	Freight Administration and Management	This equipment package manages the movement of freight from source to destination via links to the freight equipment, intermodal freight shippers, and depots. It interfaces to intermodal freight shippers to setup and schedule transportation and coordinates with intermodal freight depots to coordinate the shipment. It coordinates with the appropriate government agencies to expedite the movement of trucks, their drivers, and their cargo across international borders. The equipment package monitors the status of the freight and freight equipment (container, trailer, or chassis) and monitors freight location and compares it against the planned route.
Government Reporting Systems Support	This equipment package selects and formats data residing in an ITS archive to facilitate local, state, and federal government data reporting requirements.	Government Reporting Systems Support	This equipment package selects and formats data residing in an ITS archive to facilitate local, state provincial, and federal government data reporting requirements.

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
HRI Traffic Management	This equipment package monitors and controls highway-rail intersection (HRI) equipment. Various levels of roadside equipment may be interfaced to this equipment package including standard speed active warning systems and high speed systems which provide additional information on approaching trains and detect and report obstructions in the HRI. This equipment package remotely monitors and reports the status of the HRI equipment and sends control plan updates to the HRI equipment.	HRI Traffic Management	This equipment package monitors and controls highway-rail intersection (HRI) equipment. Various levels of roadside equipment may be interfaced to this equipment package including standard speed active warning systems and high speed systems which provide additional information on approaching trains and detect and report obstructions in the HRI. This equipment package remotely monitors and reports the status of the HRI equipment and sends control plan updates to the HRI equipment.
Incident Command	The equipment package provides tactical decision support, resource coordination, and communications integration for Incident Commands that are established by first responders at or near the incident scene to support local management of an incident. The equipment package supports communications with public safety, emergency management, transportation, and other allied response agency centers, tracks and maintains resource information, action plans, and the incident command organization itself. Information is shared with agency centers including resource deployment status, hazardous material 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. This equipment package supports the functions and interfaces commonly supported by a mobile command center.	Incident Command	The equipment package provides tactical decision support, resource coordination, and communications integration for Incident Commands that are established by first responders at or near the incident scene to support local management of an incident. The equipment package supports communications with public safety, emergency management, transportation, and other allied response agency centers centres , tracks and maintains resource information, action plans, and the incident command organization itself. Information is shared with agency centers centres including resource deployment status, hazardous material 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. This equipment package supports the functions and interfaces commonly supported by a mobile command center centre .
Infrastructure Provided Dynamic Ridesharing	This equipment package provides dynamic rideshare matches for eligible travelers, connecting riders and drivers for specific trips based on preferences. This ridesharing/ride matching capability also arranges connections to transit or other multimodal services for portions of a multi-segment trip that includes ridesharing. Reservations and advanced payment are also supported so that each segment of the trip may be confirmed.	Infrastructure Provided Dynamic Ridesharing	This equipment package provides dynamic rideshare matches for eligible traveler travellers , connecting riders and drivers for specific trips based on preferences. This ridesharing/ride matching capability also arranges connections to transit or other multimodal services for portions of a multi-segment trip that includes ridesharing. Reservations and advanced payment are also supported so that each segment of the trip may be confirmed.
Infrastructure Provided Trip Planning	This equipment package provides pre-trip and en-route trip planning services for travelers. It receives origin, destination, constraints, and preferences and returns trip plan(s) that meet the supplied criteria. Trip plans may be based on current traffic and road conditions, transit schedule information, and other real-time traveler information. Candidate trip plans are multimodal and may include vehicle, transit, and alternate mode segments (e.g., rail, ferry, bicycle routes, and walkways) based on traveler preferences. This equipment package also confirms the trip plan for the traveler and supports reservations and advanced payment for portions of the trip. The trip plan includes specific routing information and instructions for each segment of the trip and may also include information and reservations for additional services (e.g., parking) along the route.	Infrastructure Provided Trip Planning	This equipment package provides pre-trip and en-route trip planning services for traveler travellers . It receives origin, destination, constraints, and preferences and returns trip plan(s) that meet the supplied criteria. Trip plans may be based on current traffic and road conditions, transit schedule information, and other real-time traveler traveller information. Candidate trip plans are multimodal and may include vehicle, transit, and alternate mode segments (e.g., rail, ferry, bicycle routes, and walkways) based on traveler traveller preferences. This equipment package also confirms the trip plan for the traveler traveller and supports reservations and advanced payment for portions of the trip. The trip plan includes specific routing information and instructions for each segment of the trip and may also include information and reservations for additional services (e.g., parking) along the route.
Infrastructure Provided Yellow Pages and Reservation	This equipment package disseminates information about traveler services such as lodging, restaurants, and service stations. Tailored traveler service information is provided on request that meets the constraints and preferences specified by the traveler. The equipment package also supports reservations and advanced payment for traveler services.	Infrastructure Provided Yellow Pages Business Directory Service and Reservation	This equipment package disseminates information about traveler traveller services such as lodging, restaurants, and service stations. Tailored traveler traveller service information is provided on request that meets the constraints and preferences specified by the traveler traveller . The equipment package also supports reservations and advanced payment for traveler traveller services.
Interactive Infrastructure Information	This equipment package disseminates personalized traveler information including traffic and road conditions, transit information, maintenance and construction information, multimodal information, event information, and weather information. Tailored information is provided based on the traveler's request in this interactive equipment package. The interactive service offered by this equipment package is available to the Vehicle, Remote Traveler Support, and Personal Information Access subsystems.	Interactive Infrastructure Information	This equipment package disseminates personalized traveler traveller information including traffic and road conditions, transit information, maintenance and construction information, multimodal information, event information, and weather information. Tailored information is provided based on the traveler's traveller's request in this interactive equipment package. The interactive service offered by this equipment package is available to the Vehicle, Remote Traveler Traveller Support, and Personal Information Access subsystems.
Interactive Vehicle Reception	This equipment package provides drivers with personalized traveler information including traffic and road conditions, transit information, maintenance and construction information, multimodal information, event information, and weather information. The provided information is tailored based on driver requests. Both one-time requests for information and on-going information streams based on a submitted traveler profile and preferences are supported.	Interactive Vehicle Reception	This equipment package provides drivers with personalized traveler traveller information including traffic and road conditions, transit information, maintenance and construction information, multimodal information, event information, and weather information. The provided information is tailored based on driver requests. Both one-time requests for information and on-going information streams based on a submitted traveler traveller profile and preferences are supported.
International Border Crossing	This equipment package checks compliance with import/export and immigration regulations to manage release of commercial vehicle, cargo, and driver across an international border. It includes interfaces to the equipment at international border crossings operated by government agencies such as Customs and Border Protection.	International Border Crossing	This equipment package checks compliance with import/export and immigration regulations to manage release of commercial vehicle, cargo, and driver across an international border. It includes interfaces to the equipment at international border crossings operated by government agencies such as Customs and Border Protection.
International CV Administration	This equipment package generates and processes the entry documentation necessary to obtain release of vehicle, cargo, and driver across an international border, report the results of the crossing event, and handle duty fee processing. It interfaces with the systems used by customs and border protection, immigration, carriers, and service providers (e.g., brokers) to generate, process, and store entry documentation.	International CV Administration	This equipment package generates and processes the entry documentation necessary to obtain release of vehicle, cargo, and driver across an international border, report the results of the crossing event, and handle duty fee processing. It interfaces with the systems used by customs and border protection, immigration, carriers, and service providers (e.g., brokers) to generate, process, and store entry documentation.

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
ISP Data Collection	This equipment package collects and stores traveler information that is collected in the course of operation of the ISP subsystem. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.	ISP Data Collection	This equipment package collects and stores traveler traveller information that is collected in the course of operation of the ISP subsystem. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.
ISP Emergency Traveler Information	This equipment package provides emergency information to the public, including wide-area alerts and evacuation information. It provides emergency alerts, information on evacuation zones and evacuation requirements, evacuation destinations and shelter information, available transportation modes, and traffic and road conditions at the origin, destination, and along the evacuation routes. In addition to general evacuation information, personalized information including tailored evacuation routes, service information, and estimated travel times is also provided based on traveler specified origin, destination, and route parameters. Updated information is provided throughout the evacuation and subsequent reentry as status changes and plans are adapted.	ISP Emergency Traveler Traveller Information	This equipment package provides emergency information to the public, including wide-area alerts and evacuation information. It provides emergency alerts, information on evacuation zones and evacuation requirements, evacuation destinations and shelter information, available transportation modes, and traffic and road conditions at the origin, destination, and along the evacuation routes. In addition to general evacuation information, personalized information including tailored evacuation routes, service information, and estimated travel times is also provided based on traveler traveller specified origin, destination, and route parameters. Updated information is provided throughout the evacuation and subsequent reentry as status changes and plans are adapted.
ISP Operational Data Repository	This equipment package processes, stores, and distributes real-time information on the state of the regional transportation system. This equipment package facilitates sharing of real-time transportation information among transportation system operators. It includes a central repository, data processing, and communication capabilities that provide real-time access to the collected information. Many different implementations are possible including: 1) a web application that provides a web-based interface to system operators, and 2) a networked enterprise database that provides a network interface to remote system applications. Although request and subscription flows are not explicitly included, interactive data services are supported by this equipment package. The data may be broadcast or customized based on the receiving center's specified requests or subscriptions.	ISP Operational Data Repository	This equipment package processes, stores, and distributes real-time information on the state of the regional transportation system. This equipment package facilitates sharing of real-time transportation information among transportation system operators. It includes a central repository, data processing, and communication capabilities that provide real-time access to the collected information. Many different implementations are possible including: 1) a web application that provides a web-based interface to system operators, and 2) a networked enterprise database that provides a network interface to remote system applications. Although request and subscription flows are not explicitly included, interactive data services are supported by this equipment package. The data may be broadcast or customized based on the receiving center's centre's specified requests or subscriptions.
ISP Probe Information Collection	This equipment package aggregates and processes traffic probe data collected from equipped vehicles, toll operators, and transit centers. It also collects, aggregates, and processes environmental probe data from equipped vehicles. Probe data may be collected through direct wide area wireless communications with vehicles or through short range communications equipment at the roadside. Aggregated probe data and derived route travel times and environmental conditions information are distributed to other centers and other equipment packages that use the information to support transportation operations and traveler information services.	ISP Probe Information Collection	This equipment package aggregates and processes traffic probe data collected from equipped vehicles, toll operators, and transit centers centres. It also collects, aggregates, and processes environmental probe data from equipped vehicles. Probe data may be collected through direct wide area wireless communications with vehicles or through short range communications equipment at the roadside. Aggregated probe data and derived route travel times and environmental conditions information are distributed to other centers centres and other equipment packages that use the information to support transportation operations and traveler traveller information services.
ISP Traveler Data Collection	This equipment package collects traveler-related data from other centers, performs data quality checks on the collected data and then consolidates, verifies, and refines the data and makes it available in a consistent format to applications that deliver traveler information. A broad range of traveler-related data is collected including traffic and road conditions, transit data, emergency information and advisories, weather data, special event information, traveler services, parking, multimodal data, and toll/pricing data. This equipment package also shares data with other information service providers.	ISP Traveler Traveller Data Collection	This equipment package collects traveler traveller-related data from other centers centres, performs data quality checks on the collected data and then consolidates, verifies, and refines the data and makes it available in a consistent format to applications that deliver traveler traveller information. A broad range of traveler traveller-related data is collected including traffic and road conditions, transit data, emergency information and advisories, weather data, special event information, traveler traveller services, parking, multimodal data, and toll/pricing data. This equipment package also shares data with other information service providers.
ISP Traveler Information Alerts	This equipment package provides personalized traveler information alerts, notifying travelers of congestion, incidents, transit schedule delays or interruptions, parking availability, special events, air and ferry service issues, and road/weather conditions that may impact a current or upcoming trip. Relevant alerts are selected based on user-configurable parameters, thresholds, and preferences that are submitted by travelers. The travel alert service offered by this equipment package is available to the Vehicle and Personal Information Access subsystems.	ISP Traveler Traveller Information Alerts	This equipment package provides personalized traveler traveller information alerts, notifying travelers travellers of congestion, incidents, transit schedule delays or interruptions, parking availability, special events, air and ferry service issues, and road/weather conditions that may impact a current or upcoming trip. Relevant alerts are selected based on user-configurable parameters, thresholds, and preferences that are submitted by travelers travellers. The travel alert service offered by this equipment package is available to the Vehicle and Personal Information Access subsystems.
ISP VII Traveler Information Distribution	This equipment package collects, processes, stores, and disseminates traveler information including traffic and road conditions, incident information, maintenance and construction information, event information, transit information, parking information, and weather information. Location relevant traveler information is sent to short range communications transceivers at the roadside.	ISP VII Traveler Traveller Information Distribution	This equipment package collects, processes, stores, and disseminates traveler traveller information including traffic and road conditions, incident information, maintenance and construction information, event information, transit information, parking information, and weather information. Location relevant traveler traveller information is sent to short range communications transceivers at the roadside.
ITS Data Repository	This equipment package collects data and data catalogs from one or more data sources and stores the data in a focused repository that is suited to a particular set of ITS data users. This equipment package includes capabilities for performing quality checks on the incoming data, error notification, and archive to archive coordination. This equipment package supports a broad range of implementations, ranging from simple data marts that collect a focused set of data and serve a particular user community to large-scale data warehouses that collect, integrate, and summarize transportation data from multiple sources and serve a broad array of users within a region.	ITS Data Repository	This equipment package collects data and data catalogs from one or more data sources and stores the data in a focused repository that is suited to a particular set of ITS data users. This equipment package includes capabilities for performing quality checks on the incoming data, error notification, and archive to archive coordination. This equipment package supports a broad range of implementations, ranging from simple data marts that collect a focused set of data and serve a particular user community to large-scale data warehouses that collect, integrate, and summarize transportation data from multiple sources and serve a broad array of users within a region.

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Manage CV Driver Identification	<p>This equipment package collects and stores driver identification records including driver issued PINS and/or individual driver biometric measurements. The equipment package can also manage the storage of driver PINs, data from a driver identification card, and/or biometric measurements for authorized drivers on individual commercial vehicles.</p> <p>Based on information reported by the commercial vehicle, the equipment package will determine if the driver is authorized, and notify the Commercial Vehicle Manager when an unauthorized driver is detected. The Commercial Vehicle Manager may override the disable vehicle action. When an unauthorized driver is detected and the system is not overridden, then the equipment package will issue a message to the commercial vehicle to safely disable the vehicle. If an unauthorized driver is detected, then the equipment package will send to the Emergency Management Subsystem an alert that includes: incident location, current location of the CV, Vehicle ID, Carrier ID, Driver ID, CV Credentials information, and cargo manifest (if known).</p>	Manage CV Driver Identification	<p>This equipment package collects and stores driver identification records including driver issued PINS and/or individual driver biometric measurements. The equipment package can also manage the storage of driver PINs, data from a driver identification card, and/or biometric measurements for authorized drivers on individual commercial vehicles.</p> <p>Based on information reported by the commercial vehicle, the equipment package will determine if the driver is authorized, and notify the Commercial Vehicle Manager when an unauthorized driver is detected. The Commercial Vehicle Manager may override the disable vehicle action. When an unauthorized driver is detected and the system is not overridden, then the equipment package will issue a message to the commercial vehicle to safely disable the vehicle. If an unauthorized driver is detected, then the equipment package will send to the Emergency Management Subsystem an alert that includes: incident location, current location of the CV, Vehicle ID, Carrier ID, Driver ID, CV Credentials information, and cargo manifest (if known).</p>
Mayday Support	<p>This equipment package receives Mayday messages from vehicles or personal handheld devices, determines an appropriate response, and either uses internal resources or contacts a local agency to provide that response. The nature of the emergency is determined based on the information in the mayday message as well as other inputs. This package effectively serves as an interface between automated mobile mayday systems and the local public safety answering point for messages which require a public safety response.</p>	Mayday Support	<p>This equipment package receives Mayday messages from vehicles or personal handheld devices, determines an appropriate response, and either uses internal resources or contacts a local agency to provide that response. The nature of the emergency is determined based on the information in the mayday message as well as other inputs. This package effectively serves as an interface between automated mobile mayday systems and the local public safety answering point for messages which require a public safety response.</p>
MCM Automated Treatment System Control	<p>This equipment package remotely monitors and controls automated road treatment systems that disperse anti-icing chemicals or otherwise treat a road segment. The automated treatment system may be remotely activated by this equipment package or it may include environmental sensors that activate the system automatically based on sensed environmental conditions. This equipment package monitors treatment system operation, sets operating parameters, and directly controls system activation if necessary.</p>	MCM Automated Treatment System Control	<p>This equipment package remotely monitors and controls automated road treatment systems that disperse anti-icing chemicals or otherwise treat a road segment. The automated treatment system may be remotely activated by this equipment package or it may include environmental sensors that activate the system automatically based on sensed environmental conditions. This equipment package monitors treatment system operation, sets operating parameters, and directly controls system activation if necessary.</p>
MCM Data Collection	<p>This equipment package collects and stores maintenance and construction information that is collected in the course of operations by the Maintenance and Construction Management Subsystem. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.</p>	MCM Data Collection	<p>This equipment package collects and stores maintenance and construction information that is collected in the course of operations by the Maintenance and Construction Management Subsystem. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.</p>
MCM Environmental Information Collection	<p>This equipment package collects current road and weather conditions using data collected from environmental sensors deployed on and about the roadway. In addition to fixed sensor stations at the roadside, this equipment package also collects environmental information from sensor systems located on Maintenance and Construction Vehicles as well as the broader population of vehicle probes. It also collects current and forecast environmental conditions information that is made available by other systems. The equipment package aggregates the sensor system data and provides it, along with data attributes to meteorological systems.</p>	MCM Environmental Information Collection	<p>This equipment package collects current road and weather conditions using data collected from environmental sensors deployed on and about the roadway. In addition to fixed sensor stations at the roadside, this equipment package also collects environmental information from sensor systems located on Maintenance and Construction Vehicles as well as the broader population of vehicle probes. It also collects current and forecast environmental conditions information that is made available by other systems. The equipment package aggregates the sensor system data and provides it, along with data attributes to meteorological systems.</p>
MCM Environmental Information Processing	<p>This equipment package processes current and forecast weather data, road condition information, local environmental data, and uses internal models to develop specialized detailed forecasts of local weather and surface conditions. The processed environmental information products are presented to center personnel and disseminated to other centers.</p>	MCM Environmental Information Processing	<p>This equipment package processes current and forecast weather data, road condition information, local environmental data, and uses internal models to develop specialized detailed forecasts of local weather and surface conditions. The processed environmental information products are presented to center personnel and disseminated to other centers.</p>
MCM Incident Management	<p>This equipment package supports maintenance and construction participation in coordinated incident response. Incident notifications are shared, incident response resources are managed, and the overall incident situation and incident response status is coordinated among allied response organizations.</p>	MCM Incident Management	<p>This equipment package supports maintenance and construction participation in coordinated incident response. Incident notifications are shared, incident response resources are managed, and the overall incident situation and incident response status is coordinated among allied response organizations.</p>
MCM Infrastructure Monitoring	<p>This equipment package monitors the condition of pavement, bridges, tunnels, associated hardware, and other transportation-related infrastructure (e.g., culverts). This center equipment package monitors the infrastructure using both fixed and vehicle-based sensors. In addition to specialized infrastructure monitoring sensors, this equipment package also monitors the broader population of vehicle probes for vertical acceleration data and other probe data that may be used to determine current pavement condition.</p>	MCM Infrastructure Monitoring	<p>This equipment package monitors the condition of pavement, bridges, tunnels, associated hardware, and other transportation-related infrastructure (e.g., culverts). This center equipment package monitors the infrastructure using both fixed and vehicle-based sensors. In addition to specialized infrastructure monitoring sensors, this equipment package also monitors the broader population of vehicle probes for vertical acceleration data and other probe data that may be used to determine current pavement condition.</p>
MCM Maintenance Decision Support	<p>This equipment package recommends maintenance courses of action based on current and forecast environmental and road conditions and additional application specific information. Decisions are supported through understandable presentation of filtered and fused environmental and road condition information for specific time horizons as well as specific maintenance recommendations that are generated by the system based on this integrated information. The recommended courses of action are supported by information on the anticipated consequences of action or inaction, when available.</p>	MCM Maintenance Decision Support	<p>This equipment package recommends maintenance courses of action based on current and forecast environmental and road conditions and additional application specific information. Decisions are supported through understandable presentation of filtered and fused environmental and road condition information for specific time horizons as well as specific maintenance recommendations that are generated by the system based on this integrated information. The recommended courses of action are supported by information on the anticipated consequences of action or inaction, when available.</p>

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
MCM Roadway Maintenance and Construction	This equipment package provides overall management and support for routine maintenance on a roadway system or right-of-way. Services managed include landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment on the roadway (e.g., signs, traffic controllers, traffic detectors, dynamic message signs, traffic signals, etc.). Environmental conditions information is also received from various weather sources to aid in scheduling routine maintenance activities.	MCM Roadway Maintenance and Construction	This equipment package provides overall management and support for routine maintenance on a roadway system or right-of-way. Services managed include landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment on the roadway (e.g., signs, traffic controllers, traffic detectors, dynamic message signs, traffic signals, etc.). Environmental conditions information is also received from various weather sources to aid in scheduling routine maintenance activities.
MCM Speed Monitoring	This equipment package remotely monitors and controls devices that monitor vehicle speeds and optionally provide safe speed advisories to the motorist. If excessive speeds are detected, this equipment package also includes the capability to notify an enforcement agency and request traffic enforcement in work zones or other areas where excessive speeds are identified.	MCM Speed Monitoring	This equipment package remotely monitors and controls devices that monitor vehicle speeds and optionally provide safe speed advisories to the motorist. If excessive speeds are detected, this equipment package also includes the capability to notify an enforcement agency and request traffic enforcement in work zones or other areas where excessive speeds are identified.
MCM Transportation Operations Data Collection	This equipment package collects real-time information on the state of the regional transportation system for operational use by the center. It includes communication and data processing capabilities that provide real-time access to regional transportation information that is stored in a regional repository. This equipment package establishes communications with the repository, requests or subscribes to information relevant to the center, receives and processes the information, and then distributes the information to other equipment packages and the system operator for use. Although request and subscription flows are not explicitly included in the National ITS Architecture, interactive data services are supported by this equipment package.	MCM Transportation Operations Data Collection	This equipment package collects real-time information on the state of the regional transportation system for operational use by the eentercentre . It includes communication and data processing capabilities that provide real-time access to regional transportation information that is stored in a regional repository. This equipment package establishes communications with the repository, requests or subscribes to information relevant to the eentercentre , receives and processes the information, and then distributes the information to other equipment packages and the system operator for use. Although request and subscription flows are not explicitly included in the National ITS Architecture for Canada , interactive data services are supported by this equipment package.
MCM Vehicle and Equipment Maintenance Management	This equipment package monitors vehicle and equipment condition, tracks maintenance history, and schedules routine and corrective maintenance based on vehicle utilization and availability schedules.	MCM Vehicle and Equipment Maintenance Management	This equipment package monitors vehicle and equipment condition, tracks maintenance history, and schedules routine and corrective maintenance based on vehicle utilization and availability schedules.
MCM Vehicle Tracking	This equipment package tracks the location of maintenance and construction vehicles and other equipment. Vehicle location and associated information is presented to the operator.	MCM Vehicle Tracking	This equipment package tracks the location of maintenance and construction vehicles and other equipment. Vehicle location and associated information is presented to the operator.
MCM Winter Maintenance Management	This equipment package manages winter road maintenance, tracking and controlling snow plow operations, roadway treatment (e.g., salt spraying and other material applications), and other snow and ice control operations. It monitors environmental conditions and weather forecasts and uses the information to schedule winter maintenance activities, determine the appropriate snow and ice control response, and track and manage response operations.	MCM Winter Maintenance Management	This equipment package manages winter road maintenance, tracking and controlling snow plow operations, roadway treatment (e.g., salt spraying and other material applications), and other snow and ice control operations. It monitors environmental conditions and weather forecasts and uses the information to schedule winter maintenance activities, determine the appropriate snow and ice control response, and track and manage response operations.
MCM Work Activity Coordination	This equipment package disseminates work activity schedules and current asset restrictions to other agencies. Work schedules are coordinated with operating agencies, factoring in the needs and activities of other agencies and adjacent jurisdictions. Work schedules are also distributed to Information Service Providers for dissemination to the traveling public.	MCM Work Activity Coordination	This equipment package disseminates work activity schedules and current asset restrictions to other agencies. Work schedules are coordinated with operating agencies, factoring in the needs and activities of other agencies and adjacent jurisdictions. Work schedules are also distributed to Information Service Providers for dissemination to the traveling public.
MCM Work Zone Management	This equipment package remotely monitors and supports work zone activities, controlling traffic through dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers, and informing other groups of activity (e.g., ISP, TM, other maintenance and construction centers) for better coordination management. Work zone speeds, and delays, and closures are provided to the motorist prior to the work zones. This equipment package provides control of field equipment in all maintenance areas, including fixed and portable field equipment supporting both stationary and mobile work zones.	MCM Work Zone Management	This equipment package remotely monitors and supports work zone activities, controlling traffic through dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers, and informing other groups of activity (e.g., ISP, TM, other maintenance and construction eentercentres) for better coordination management. Work zone speeds, and delays, and closures are provided to the motorist prior to the work zones. This equipment package provides control of field equipment in all maintenance areas, including fixed and portable field equipment supporting both stationary and mobile work zones.
MCM Work Zone Safety Management	This equipment package remotely monitors work zone safety systems that detect vehicle intrusions in work zones and warns crew workers and drivers of imminent encroachment. Crew movements are also monitored so that the crew can be warned of movement beyond the designated safe zone.	MCM Work Zone Safety Management	This equipment package remotely monitors work zone safety systems that detect vehicle intrusions in work zones and warns crew workers and drivers of imminent encroachment. Crew movements are also monitored so that the crew can be warned of movement beyond the designated safe zone.
MCV Barrier System Control	This on-board equipment package provides local control of automatic or remotely controlled gates and other barrier systems from a maintenance and construction vehicle. Using this equipment package, maintenance and construction field personnel (e.g., snow plow operators) can open and close gates and other barrier systems without leaving the vehicle, using Field-Vehicle Communications to control the barriers.	MCV Barrier System Control	This on-board equipment package provides local control of automatic or remotely controlled gates and other barrier systems from a maintenance and construction vehicle. Using this equipment package, maintenance and construction field personnel (e.g., snow plow operators) can open and close gates and other barrier systems without leaving the vehicle, using Field-Vehicle Communications to control the barriers.
MCV Environmental Monitoring	This on-board equipment package collects current road and surface weather conditions from sensors on-board the maintenance and construction vehicle or by querying fixed sensors on or near the roadway. Environmental information including road surface temperature, air temperature, and wind speed is measured and spatially located and time stamped, and reported back to a center.	MCV Environmental Monitoring	This on-board equipment package collects current road and surface weather conditions from sensors on-board the maintenance and construction vehicle or by querying fixed sensors on or near the roadway. Environmental information including road surface temperature, air temperature, and wind speed is measured and spatially located and time stamped, and reported back to a eentercentre .
MCV Infrastructure Monitoring	This on-board equipment package monitors the condition of pavement, bridges, tunnels, associated hardware, and other transportation-related infrastructure (e.g., culverts). It includes vehicle-based sensors that directly monitor the infrastructure, communications that allow roadway-based infrastructure monitoring sensors to be controlled and read, and data communications that allows collected infrastructure condition information to be reported back to a center.	MCV Infrastructure Monitoring	This on-board equipment package monitors the condition of pavement, bridges, tunnels, associated hardware, and other transportation-related infrastructure (e.g., culverts). It includes vehicle-based sensors that directly monitor the infrastructure, communications that allow roadway-based infrastructure monitoring sensors to be controlled and read, and data communications that allows collected infrastructure condition information to be reported back to a eentercentre .

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
MCV Roadway Maintenance and Construction	This equipment package includes the on-board systems that support routine non-winter maintenance on a roadway system or right-of-way. Routine maintenance includes landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment on the roadway (e.g., signs, traffic controllers, traffic detectors, dynamic message signs, traffic signals, etc.).	MCV Roadway Maintenance and Construction	This equipment package includes the on-board systems that support routine non-winter maintenance on a roadway system or right-of-way. Routine maintenance includes landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment on the roadway (e.g., signs, traffic controllers, traffic detectors, dynamic message signs, traffic signals, etc.).
MCV Vehicle Location Tracking	This on-board equipment package tracks vehicle location and reports the position and timestamp information to a dispatch center.	MCV Vehicle Location Tracking	This on-board equipment package tracks vehicle location and reports the position and timestamp information to a dispatch center .
MCV Vehicle Safety Monitoring	This equipment package detects vehicle intrusions in the vicinity of the vehicle and warns crew workers and drivers of imminent encroachment. Crew movements are also monitored so that the crew can be warned of movement beyond the designated safe zone. This equipment package can be used for stationary work zones or in mobile applications where a safe zone is maintained around the moving vehicle.	MCV Vehicle Safety Monitoring	This equipment package detects vehicle intrusions in the vicinity of the vehicle and warns crew workers and drivers of imminent encroachment. Crew movements are also monitored so that the crew can be warned of movement beyond the designated safe zone. This equipment package can be used for stationary work zones or in mobile applications where a safe zone is maintained around the moving vehicle.
MCV Vehicle System Monitoring and Diagnostics	This equipment package includes on-board sensors capable of monitoring the condition of each of the vehicle systems and diagnostics that can be used to support vehicle maintenance. The status of the vehicle and ancillary equipment and diagnostic information is provided to the vehicle operator, repair facility, and dispatch center.	MCV Vehicle System Monitoring and Diagnostics	This equipment package includes on-board sensors capable of monitoring the condition of each of the vehicle systems and diagnostics that can be used to support vehicle maintenance. The status of the vehicle and ancillary equipment and diagnostic information is provided to the vehicle operator, repair facility, and dispatch center .
MCV Winter Maintenance	This on-board equipment package supports snow plow operations and other roadway treatments (e.g., salt spraying and other material applications). It supports communications with the center to receive information and instructions that are provided to the vehicle operator and also supports remote control of on-board systems. The equipment package tracks operational status of snow and ice control operations and provides this information back to the center.	MCV Winter Maintenance	This on-board equipment package supports snow plow operations and other roadway treatments (e.g., salt spraying and other material applications). It supports communications with the center to receive information and instructions that are provided to the vehicle operator and also supports remote control of on-board systems. The equipment package tracks operational status of snow and ice control operations and provides this information back to the center .
MCV Work Zone Support	This on-board equipment package provides communications and support for local management of a work zone. It supports communications between field personnel and the managing center to keep the center apprised of current work zone status. It controls vehicle-mounted driver information systems (e.g., dynamic message signs) and uses short range communications to monitor and control other fixed or portable driver information systems in the work zone.	MCV Work Zone Support	This on-board equipment package provides communications and support for local management of a work zone. It supports communications between field personnel and the managing center to keep the center apprised of current work zone status. It controls vehicle-mounted driver information systems (e.g., dynamic message signs) and uses short range communications to monitor and control other fixed or portable driver information systems in the work zone.
Multimodal Crossing Control	This equipment package monitors multimodal crossings and monitors and controls traffic control equipment in the vicinity of the crossing. Equipment controlled includes warning lights, gates, dynamic message signs, and other systems associated with multimodal crossings. This equipment package manages draw bridges and miscellaneous other crossings between highway traffic and other modes. Railroad grade crossings are covered by the Standard Rail Crossing equipment package.	Multimodal Crossing Control	This equipment package monitors multimodal crossings and monitors and controls traffic control equipment in the vicinity of the crossing. Equipment controlled includes warning lights, gates, dynamic message signs, and other systems associated with multimodal crossings. This equipment package manages draw bridges and miscellaneous other crossings between highway traffic and other modes. Railroad grade crossings are covered by the Standard Rail Crossing equipment package.
On-board Cargo Monitoring	This on-board equipment package monitors the location and status of the commercial vehicle and its cargo. It sends the collected data to appropriate centers and roadside facilities, including emergency management in the case of HAZMAT incidents. Depending on the nature of the cargo, this equipment package may include sensors that measure temperature, pressure, load leveling, acceleration, and other attributes of the cargo.	On-board Cargo Monitoring	This on-board equipment package monitors the location and status of the commercial vehicle and its cargo. It sends the collected data to appropriate centers and roadside facilities, including emergency management in the case of HAZMAT incidents. Depending on the nature of the cargo, this equipment package may include sensors that measure temperature, pressure, load leveling, acceleration, and other attributes of the cargo.
On-board CV Electronic Data	This on-board equipment package exchanges information with roadside facilities, providing information such as driver, vehicle, and carrier identification to roadside facilities that can be used to support electronic screening. Pass/pull-in messages are received and presented to the commercial vehicle driver and screening events are recorded. Additional information, including trip records (e.g., border clearance information), safety inspection records, cargo information, and driver status information may also be collected, stored, and made available to the roadside facility by this equipment package.	On-board CV Electronic Data	This on-board equipment package exchanges information with roadside facilities, providing information such as driver, vehicle, and carrier identification to roadside facilities that can be used to support electronic screening. Pass/pull-in messages are received and presented to the commercial vehicle driver and screening events are recorded. Additional information, including trip records (e.g., border clearance information), safety inspection records, cargo information, and driver status information may also be collected, stored, and made available to the roadside facility by this equipment package.
On-board CV Safety and Security	This on-board equipment package collects and processes vehicle and driver safety and security information and provides safety and security information to the Fleet and Freight Management Subsystem. This equipment package also supplies this information to the roadside facilities both at mainline speeds and while stopped for inspections. The capability to alert the commercial vehicle driver whenever there is a critical safety or security problem or potential emergency is also provided. The package also supports on-board driver safety log maintenance and checking.	On-board CV Safety and Security	This on-board equipment package collects and processes vehicle and driver safety and security information and provides safety and security information to the Fleet and Freight Management Subsystem. This equipment package also supplies this information to the roadside facilities both at mainline speeds and while stopped for inspections. The capability to alert the commercial vehicle driver whenever there is a critical safety or security problem or potential emergency is also provided. The package also supports on-board driver safety log maintenance and checking.
On-board Driver Authentication	This on-board equipment package monitors the identity of the commercial vehicle driver and compares it with the planned drivers for the commercial vehicle. Any change in driver is sent to the Fleet and Freight Management Subsystem. Notification of any unexpected drivers will also be sent to the Fleet and Freight Management Subsystem which, in turn, may send a disable vehicle command back to this equipment package to cause the vehicle to stop. On receipt of a disable vehicle message from the Fleet and Freight Management Subsystem or on detection of an unauthorized driver, the equipment package will safety disable the CV.	On-board Driver Authentication	This on-board equipment package monitors the identity of the commercial vehicle driver and compares it with the planned drivers for the commercial vehicle. Any change in driver is sent to the Fleet and Freight Management Subsystem. Notification of any unexpected drivers will also be sent to the Fleet and Freight Management Subsystem which, in turn, may send a disable vehicle command back to this equipment package to cause the vehicle to stop. On receipt of a disable vehicle message from the Fleet and Freight Management Subsystem or on detection of an unauthorized driver, the equipment package will safety disable the CV.

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
On-Board EV Barrier System Control	This on-board equipment package provides local control of automatic or remotely controlled gates and other barrier systems from an emergency vehicle. Using this equipment package, emergency personnel can open and close barriers without leaving the vehicle, using Field-Vehicle Communications to control the barriers.	On-Boardboard EV Barrier System Control	This on-board equipment package provides local control of automatic or remotely controlled gates and other barrier systems from an emergency vehicle. Using this equipment package, emergency personnel can open and close barriers without leaving the vehicle, using Field-Vehicle Communications to control the barriers.
On-board EV En Route Support	This on-board equipment package supports dispatch, routing, and tracking of an emergency vehicle. Dispatch and routing information are received and presented to the driver and vehicle location and status are tracked and provided back to the dispatcher. This equipment package supports traffic signal preemption via short range communication directly with signal control equipment and sends alert messages to surrounding vehicles. It also supports communications with care facilities, sharing patient status and care facility status between the en route emergency vehicle and the care facility.	On-board EV En Route Support	This on-board equipment package supports dispatch, routing, and tracking of an emergency vehicle. Dispatch and routing information are received and presented to the driver and vehicle location and status are tracked and provided back to the dispatcher. This equipment package supports traffic signal preemption via short range communication directly with signal control equipment and sends alert messages to surrounding vehicles. It also supports communications with care facilities, sharing patient status and care facility status between the en route emergency vehicle and the care facility.
On-board EV Incident Management Communication	This on-board equipment package provides communications support to first responders. Information about the incident, information on dispatched resources, and ancillary information such as road and weather conditions are provided to emergency personnel. Emergency personnel transmit information about the incident such as identification of vehicles and people involved, the extent of injuries, hazardous material, resources on site, site management strategies in effect, and current clearance status. Emergency personnel may also send in-vehicle signing messages to approaching traffic using short range communications.	On-board EV Incident Management Communication	This on-board equipment package provides communications support to first responders. Information about the incident, information on dispatched resources, and ancillary information such as road and weather conditions are provided to emergency personnel. Emergency personnel transmit information about the incident such as identification of vehicles and people involved, the extent of injuries, hazardous material, resources on site, site management strategies in effect, and current clearance status. Emergency personnel may also send in-vehicle signing messages to approaching traffic using short range communications.
On-board Maintenance	This on-board equipment package collects and processes transit vehicle maintenance data including mileage and vehicle operating conditions. This maintenance information is provided to the management center and used to schedule future vehicle maintenance and repair.	On-board Maintenance	This on-board equipment package collects and processes transit vehicle maintenance data including mileage and vehicle operating conditions. This maintenance information is provided to the management center and used to schedule future vehicle maintenance and repair.
On-board Paratransit Operations	This on-board equipment package forwards paratransit and flexible-route dispatch requests to the operator and forwards acknowledgements to the center. It coordinates with, and assists the operator in managing multi-stop runs associated with demand responsive transit services including paratransit. The equipment package collects transit vehicle passenger data and makes it available to the center.	On-board Paratransit Operations	This on-board equipment package forwards paratransit and flexible-route dispatch requests to the operator and forwards acknowledgements to the center . It coordinates with, and assists the operator in managing multi-stop runs associated with demand responsive transit services including paratransit. The equipment package collects transit vehicle passenger data and makes it available to the center .
On-board Passenger Counting	This on-board equipment package collects transit vehicle loading data and makes it available to the center. It provides two-way communication between the transit vehicle and center.	On-board Passenger Counting	This on-board equipment package collects transit vehicle loading data and makes it available to the center . It provides two-way communication between the transit vehicle and center .
On-board Schedule Management	This on-board equipment package monitors schedule performance and identifies corrective actions when a deviation is detected. It provides two-way communication between the transit vehicle and center, enabling the center to communicate with the vehicle operator and monitor on-board systems.	On-board Schedule Management	This on-board equipment package monitors schedule performance and identifies corrective actions when a deviation is detected. It provides two-way communication between the transit vehicle and center , enabling the center to communicate with the vehicle operator and monitor on-board systems.
On-board Transit Fare Management	This on-board equipment package supports fare collection using a standard fare card or other non-monetary fare medium and detects payment violations. Collected fare data are made available to the center.	On-board Transit Fare Management	This on-board equipment package supports fare collection using a standard fare card or other non-monetary fare medium and detects payment violations. Collected fare data are made available to the center .
On-board Transit In Vehicle Signing Communications	This equipment package provides the capability for the transit vehicle to distribute information to vehicles in the vicinity for in-vehicle display. The information provided supplements external signs and signals on the transit vehicle and may include notification that the vehicle (e.g., a school bus) is making a passenger stop or notice that the transit vehicle is attempting to merge and is requesting gap assistance. This equipment package includes an interface to the transit operator and the short range communications equipment that provides information to passing vehicles.	On-board Transit In Vehicle Signing Communications	This equipment package provides the capability for the transit vehicle to distribute information to vehicles in the vicinity for in-vehicle display. The information provided supplements external signs and signals on the transit vehicle and may include notification that the vehicle (e.g., a school bus) is making a passenger stop or notice that the transit vehicle is attempting to merge and is requesting gap assistance. This equipment package includes an interface to the transit operator and the short range communications equipment that provides information to passing vehicles.
On-board Transit Information Services	This equipment package furnishes en-route transit users with real-time travel-related information on-board a transit vehicle. Current information that can be provided to transit users includes transit routes, schedules, transfer options, fares, real-time schedule adherence, current incidents, weather conditions, non-motorized transportation services, and special events are provided. In addition to tailored information for individual transit users, this equipment package also supports general annunciation and/or display of general schedule information, imminent arrival information, and other information of general interest to transit users.	On-board Transit Information Services	This equipment package furnishes en-route transit users with real-time travel-related information on-board a transit vehicle. Current information that can be provided to transit users includes transit routes, schedules, transfer options, fares, real-time schedule adherence, current incidents, weather conditions, non-motorized transportation services, and special events are provided. In addition to tailored information for individual transit users, this equipment package also supports general annunciation and/or display of general schedule information, imminent arrival information, and other information of general interest to transit users.
On-board Transit Security	This equipment package provides security and safety functions on-board the transit vehicle. It includes surveillance and sensor systems that monitor the on-board environment, silent alarms that can be activated by transit user or vehicle operator, operator authentication, and a remote vehicle disable function. The surveillance equipment includes video (e.g. CCTV cameras), audio systems and/or event recorder systems. The sensor equipment includes threat sensors (e.g. chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors) and object detection sensors (e.g. metal detectors).	On-board Transit Security	This equipment package provides security and safety functions on-board the transit vehicle. It includes surveillance and sensor systems that monitor the on-board environment, silent alarms that can be activated by transit user or vehicle operator, operator authentication, and a remote vehicle disable function. The surveillance equipment includes video (e.g. CCTV cameras), audio systems and/or event recorder systems. The sensor equipment includes threat sensors (e.g. chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors) and object detection sensors (e.g. metal detectors).

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
On-board Transit Signal Priority	This on-board equipment package provides the capability for transit vehicles to request signal priority at signalized intersections, ramps, and interchanges through short range communication directly with traffic control equipment at the roadside.	On-board Transit Signal Priority	This on-board equipment package provides the capability for transit vehicles to request signal priority at signalized intersections, ramps, and interchanges through short range communication directly with traffic control equipment at the roadside.
On-board Transit Trip Monitoring	This on-board equipment package tracks vehicle location, monitors fuel usage, collects operational status (doors opened/closed, running times, etc.) and sends the collected, time stamped data to the Transit Management Subsystem.	On-board Transit Trip Monitoring	This on-board equipment package tracks vehicle location, monitors fuel usage, collects operational status (doors opened/closed, running times, etc.) and sends the collected, time stamped data to the Transit Management Subsystem.
On-board Trip Monitoring	This equipment package provides the capabilities to support fleet management with automatic vehicle location and automated mileage and fuel reporting and auditing. In addition, this equipment is used to monitor the planned route and notify the Fleet and Freight Management Subsystem of any deviations.	On-board Trip Monitoring	This equipment package provides the capabilities to support fleet management with automatic vehicle location and automated mileage and fuel reporting and auditing. In addition, this equipment is used to monitor the planned route and notify the Fleet and Freight Management Subsystem of any deviations.
On-Line Analysis and Mining	This equipment package provides advanced data analysis, summarization, and mining features that facilitate discovery of information, patterns, and correlations in large data sets. Multidimensional analysis, selective summarization and expansion of data details, and many other advanced analysis services may be offered by various implementations of this equipment package.	On-Line Analysis and Mining	This equipment package provides advanced data analysis, summarization, and mining features that facilitate discovery of information, patterns, and correlations in large data sets. Multidimensional analysis, selective summarization and expansion of data details, and many other advanced analysis services may be offered by various implementations of this equipment package.
Parking Coordination	This equipment package supports communication and coordination between equipped parking facilities and also supports regional coordination between parking facilities and traffic and transit management systems. This equipment package also shares information with transit management systems and information service providers to support multimodal travel planning, including parking reservations capabilities. Information including current parking availability, system status, and operating strategies are shared through this equipment package to enable local parking facility management that supports regional transportation strategies.	Parking Coordination	This equipment package supports communication and coordination between equipped parking facilities and also supports regional coordination between parking facilities and traffic and transit management systems. This equipment package also shares information with transit management systems and information service providers to support multimodal travel planning, including parking reservations capabilities. Information including current parking availability, system status, and operating strategies are shared through this equipment package to enable local parking facility management that supports regional transportation strategies.
Parking Data Collection	This equipment package collects and stores parking information that is collected in the course of parking system operations performed by the Parking Management Subsystem. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.	Parking Data Collection	This equipment package collects and stores parking information that is collected in the course of parking system operations performed by the Parking Management Subsystem. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.
Parking Electronic Payment	This equipment package supports electronic payment of parking fees using in-vehicle equipment (e.g., tags) or contact or proximity cards. It includes the field elements that provide the interface to the in-vehicle or card payment device and the back-office functionality that performs the transaction.	Parking Electronic Payment	This equipment package supports electronic payment of parking fees using in-vehicle equipment (e.g., tags) or contact or proximity cards. It includes the field elements that provide the interface to the in-vehicle or card payment device and the back-office functionality that performs the transaction.
Parking Management	This equipment package detects and classifies vehicles at parking facility entrances, exits, and other designated locations within the facility. Current parking availability is monitored and used to inform drivers through dynamic message signs/displays so that vehicles are efficiently routed to available spaces. Parking facility information, including current parking rates and directions to entrances and available exits, is also provided to drivers. Coordination with traffic management supports local traffic control coordination in and around the parking facility.	Parking Management	This equipment package detects and classifies vehicles at parking facility entrances, exits, and other designated locations within the facility. Current parking availability is monitored and used to inform drivers through dynamic message signs/displays so that vehicles are efficiently routed to available spaces. Parking facility information, including current parking rates and directions to entrances and available exits, is also provided to drivers. Coordination with traffic management supports local traffic control coordination in and around the parking facility.
Parking Short Range Traveler Information Communications	This equipment package includes field elements that distribute parking information to vehicles for in-vehicle display. This equipment package controls the information distribution and includes the short range communications equipment that provides information to passing vehicles.	Parking Short Range Traveler Traveller Information Communications	This equipment package includes field elements that distribute parking information to vehicles for in-vehicle display. This equipment package controls the information distribution and includes the short range communications equipment that provides information to passing vehicles.
Personal Autonomous Route Guidance	This equipment package provides multi-modal route planning and transition by transition route guidance. It provides autonomous route guidance in the absence of real-time information or factors information provided by the infrastructure into its route selection and guidance algorithms if available. The equipment package also includes those truly autonomous systems that are not configured to receive or process any external data. The route guidance capabilities of this equipment package are hosted on personal devices including personal computers and personal portable devices such as PDAs and pagers.	Personal Autonomous Route Guidance	This equipment package provides multi-modal route planning and transition by transition route guidance. It provides autonomous route guidance in the absence of real-time information or factors information provided by the infrastructure into its route selection and guidance algorithms if available. The equipment package also includes those truly autonomous systems that are not configured to receive or process any external data. The route guidance capabilities of this equipment package are hosted on personal devices including personal computers and personal portable devices such as PDAs and pagers.
Personal Basic Information Reception	This equipment package receives formatted traffic advisories, road conditions, transit information, broadcast alerts, and other general traveler information broadcasts and presents the information to the traveler. The traveler information broadcasts are received by personal devices including personal computers and personal portable devices such as personal digital assistants (PDAs) and pagers.	Personal Basic Information Reception	This equipment package receives formatted traffic advisories, road conditions, transit information, broadcast alerts, and other general traveler traveller information broadcasts and presents the information to the traveler traveller. The traveler traveller information broadcasts are received by personal devices including personal computers and personal portable devices such as personal digital assistants (PDAs) and pagers.
Personal Interactive Information Reception	This equipment package provides traffic information, road conditions, transit information, yellow pages (traveler services) information, special event information, and other traveler information that is specifically tailored based on the traveler's request and/or previously submitted traveler profile information. The interactive traveler information capability is provided by personal devices including personal computers and personal portable devices such as personal digital assistants (PDAs).	Personal Interactive Information Reception	This equipment package provides traffic information, road conditions, transit information, yellow pages (traveler business directory service (traveller services) information, special event information, and other traveler traveller information that is specifically tailored based on the traveler traveller's request and/or previously submitted traveler traveller profile information. The interactive traveler traveller information capability is provided by personal devices including personal computers and personal portable devices such as personal digital assistants (PDAs).

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Personal Location Determination	This equipment package receives current location information and provides this information to other equipment packages that use the location information to provide guidance and emergency notification services. The equipment package interfaces with and encapsulates positioning technology such as a GPS receiver that is embedded in the user's personal computer or other portable device.	Personal Location Determination	This equipment package receives current location information and provides this information to other equipment packages that use the location information to provide guidance and emergency notification services. The equipment package interfaces with and encapsulates positioning technology such as a GPS receiver that is embedded in the user's personal computer or other portable device.
Personal Mayday I/F	This equipment package provides the capability for travelers to report an emergency or activate a panic button to summon assistance. The personal mayday capability is provided by a portable device such as a personal digital assistant (PDA).	Personal Mayday I/F	This equipment package provides the capability for traveler travellers to report an emergency or activate a panic button to summon assistance. The personal mayday capability is provided by a portable device such as a personal digital assistant (PDA).
Personal Trip Planning and Route Guidance	This equipment package provides a personalized trip plan to the traveler. The trip plan is calculated by the Information Service Provider based on preferences and constraints supplied by the traveler and provided to the traveler for confirmation. Reservations and advanced payment may also be processed by this equipment package to confirm the trip plan. Coordination with the Information Service Provider may continue during the trip so that the route plan can be modified to account for new information. Many equipment configurations are possible including systems that provide a basic trip plan to the traveler as well as more sophisticated systems that can provide transition by transition guidance to the traveler along a multi-modal route. Devices represented by this equipment package include desktop computers at home, work, or at major trip generation sites, plus personal portable devices such as PDAs and pagers.	Personal Trip Planning and Route Guidance	This equipment package provides a personalized trip plan to the traveler traveller. The trip plan is calculated by the Information Service Provider based on preferences and constraints supplied by the traveler traveller and provided to the traveler traveller for confirmation. Reservations and advanced payment may also be processed by this equipment package to confirm the trip plan. Coordination with the Information Service Provider may continue during the trip so that the route plan can be modified to account for new information. Many equipment configurations are possible including systems that provide a basic trip plan to the traveler traveller as well as more sophisticated systems that can provide transition by transition guidance to the traveler traveller along a multi-modal route. Devices represented by this equipment package include desktop computers at home, work, or at major trip generation sites, plus personal portable devices such as PDAs and pagers.
Rail Operations Coordination	This equipment package provides coordination between rail operations and traffic management centers. It receives train schedules, maintenance schedules, incidents, priority messages, and any other forecast events that will impact highway-rail intersection (HRI) closures from Rail Operations. The provided information is used to develop forecast HRI closure times and durations which may be applied in advanced traffic control strategies or delivered as enhanced traveler information. This equipment package includes the processing and algorithms necessary to derive HRI closure times and the communications capabilities necessary to communicate with rail operations and interface to the traffic control and information distribution capabilities included in other Traffic Management Subsystem equipment packages.	Rail Operations Coordination	This equipment package provides coordination between rail operations and traffic management centers centres. It receives train schedules, maintenance schedules, incidents, priority messages, and any other forecast events that will impact highway-rail intersection (HRI) closures from Rail Operations. The provided information is used to develop forecast HRI closure times and durations which may be applied in advanced traffic control strategies or delivered as enhanced traveler traveller information. This equipment package includes the processing and algorithms necessary to derive HRI closure times and the communications capabilities necessary to communicate with rail operations and interface to the traffic control and information distribution capabilities included in other Traffic Management Subsystem equipment packages.
Remote Basic Information Reception	This equipment package receives formatted traffic advisories, road conditions, transit information, broadcast alerts, and other general traveler information broadcasts and presents the information to the traveler with a public traveler interface. This equipment package includes the receiver and public display device such as a kiosk, large-scale display monitor or other public display.	Remote Basic Information Reception	This equipment package receives formatted traffic advisories, road conditions, transit information, broadcast alerts, and other general traveler traveller information broadcasts and presents the information to the traveler traveller with a public traveler traveller interface. This equipment package includes the receiver and public display device such as a kiosk, large-scale display monitor or other public display.
Remote Interactive Information Reception	This equipment package provides traffic information, road conditions, transit information, yellow pages (traveler services) information, special event information, and other traveler information that is specifically tailored based on the traveler's request and/or previously submitted traveler profile information. The interactive traveler information capability is provided by a public traveler interface, such as a kiosk.	Remote Interactive Information Reception	This equipment package provides traffic information, road conditions, transit information, yellow pages (traveler business directory service (traveller services) information, special event information, and other traveler traveller information that is specifically tailored based on the traveler traveller's request and/or previously submitted traveler traveller profile information. The interactive traveler traveller information capability is provided by a public traveler traveller interface, such as a kiosk.
Remote Transit Fare Management	This equipment package provides the capability for the traveler to use a common fare medium for transit fares, tolls, and/or parking lot charges. It accepts a service request and means of payment, verifies eligibility, calculates the amount due, collects payment, and identifies payment problems. This equipment package may be implemented using a traveler card reader in a kiosk that includes a communications interface to the financial infrastructure to support payment collection and reconciliation.	Remote Transit Fare Management	This equipment package provides the capability for the traveler traveller to use a common fare medium for transit fares, tolls, and/or parking lot charges. It accepts a service request and means of payment, verifies eligibility, calculates the amount due, collects payment, and identifies payment problems. This equipment package may be implemented using a traveler traveller card reader in a kiosk that includes a communications interface to the financial infrastructure to support payment collection and reconciliation.
Remote Transit Information Services	This equipment package furnishes transit users with real-time travel-related information at transit stops, multi-modal transfer points, and other public transportation areas. It provides transit users with information on transit routes, schedules, transfer options, available services, fares, and real-time schedule adherence. In addition to tailored information for individual transit users, this equipment package supports general annunciation and/or display of imminent arrival information and other information of general interest to transit users.	Remote Transit Information Services	This equipment package furnishes transit users with real-time travel-related information at transit stops, multi-modal transfer points, and other public transportation areas. It provides transit users with information on transit routes, schedules, transfer options, available services, fares, and real-time schedule adherence. In addition to tailored information for individual transit users, this equipment package supports general annunciation and/or display of imminent arrival information and other information of general interest to transit users.
Remote Traveler Security	This equipment package provides the capability to report an emergency or summon assistance from secure areas such as transit stops, transit stations, modal transfer facilities, rest stops and picnic areas, park-and-ride areas, tourism and travel information areas, and emergency pull off areas. This package includes interfaces that support initiation of an alarm and presentation of the returned alarm acknowledgement as well as a broadcast message to advise or warn the traveler.	Remote Traveler Traveller Security	This equipment package provides the capability to report an emergency or summon assistance from secure areas such as transit stops, transit stations, modal transfer facilities, rest stops and picnic areas, park-and-ride areas, tourism and travel information areas, and emergency pull off areas. This package includes interfaces that support initiation of an alarm and presentation of the returned alarm acknowledgement as well as a broadcast message to advise or warn the traveler traveller.

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Roadside Electronic Screening	This equipment package provides two-way communication with approaching properly equipped commercial vehicles at mainline speeds, reading tags for automated vehicle identification and credential checking. This equipment package processes the data from the commercial vehicles along with accessed database information to determine whether a pull-in message is needed or to generate random pull-in messages with provisions for facility operators and enforcement officials to have manual override capabilities.	Roadside Electronic Screening	This equipment package provides two-way communication with approaching properly equipped commercial vehicles at mainline speeds, reading tags for automated vehicle identification and credential checking. This equipment package processes the data from the commercial vehicles along with accessed database information to determine whether a pull-in message is needed or to generate random pull-in messages with provisions for facility operators and enforcement officials to have manual override capabilities.
Roadside HAZMAT Detection	This equipment package detects and identifies commercial vehicles carrying security sensitive hazardous materials. It assesses the likelihood of the presence of security sensitive HAZMAT materials based on remote sensed data as well as other physical information acquired about the commercial vehicle. It then determines if any detected HAZMAT is authorized. If unauthorized HAZMAT material is detected, a pull-in message is generated. The equipment package may also issue a message to the Emergency Management (Police Dispatch) function that includes: location of the incident, current location of the commercial vehicle, timestamp, Vehicle ID, Carrier ID, Driver ID, CV Credentials information, HAZMAT material or category detected, and cargo manifest (if known).	Roadside HAZMAT Detection	This equipment package detects and identifies commercial vehicles carrying security sensitive hazardous materials. It assesses the likelihood of the presence of security sensitive HAZMAT materials based on remote sensed data as well as other physical information acquired about the commercial vehicle. It then determines if any detected HAZMAT is authorized. If unauthorized HAZMAT material is detected, a pull-in message is generated. The equipment package may also issue a message to the Emergency Management (Police Dispatch) function that includes: location of the incident, current location of the commercial vehicle, timestamp, Vehicle ID, Carrier ID, Driver ID, CV Credentials information, HAZMAT material or category detected, and cargo manifest (if known).
Roadside Lighting System Control	This equipment package includes field equipment that controls lighting systems for transportation facilities and infrastructure. It includes the sensors, lighting controllers, and supporting field equipment that monitors and controls lighting systems. The equipment supports control based on sensed local conditions, stored timing plans, and remote commands from a center. It monitors lighting system status and reports status to the controlling center.	Roadside Lighting System Control	This equipment package includes field equipment that controls lighting systems for transportation facilities and infrastructure. It includes the sensors, lighting controllers, and supporting field equipment that monitors and controls lighting systems. The equipment supports control based on sensed local conditions, stored timing plans, and remote commands from a center center. It monitors lighting system status and reports status to the controlling center center.
Roadside Safety and Security Inspection	<p>This equipment package supports the roadside safety inspection process. It reads on-board safety data at mainline speeds to rapidly check the vehicle and driver and accesses historical safety data after identifying vehicles at mainline speeds or while stopped at the roadside. The capabilities to process safety data and issue pull-in messages or provide warnings to the driver, carrier, and enforcement agencies are also provided. It includes hand held or automatic devices to rapidly inspect the vehicle and driver. Results of screening and summary safety inspection data are stored and maintained.</p> <p>Since a vehicle may cross jurisdictional boundaries during a trip, this equipment package supports the concept of a last clearance event record carried on the vehicle tag. The last clearance event record reflects the results of the roadside verification action. For example, if the vehicle is pulled over in State A and undergoes credential, weight, and safety checks, the results of the clearance process are written to the vehicle's tag. If the vehicle continues the trip and passes a roadside station in State B, the State B station has access to the results of the previous pull-in because it can read the last clearance event record written by the State A roadside station. This equipment package associates high-risk cargo with the container/chassis, manifest, carrier, vehicle and driver transporting it.</p>	Roadside Safety and Security Inspection	<p>This equipment package supports the roadside safety inspection process. It reads on-board safety data at mainline speeds to rapidly check the vehicle and driver and accesses historical safety data after identifying vehicles at mainline speeds or while stopped at the roadside. The capabilities to process safety data and issue pull-in messages or provide warnings to the driver, carrier, and enforcement agencies are also provided. It includes hand held or automatic devices to rapidly inspect the vehicle and driver. Results of screening and summary safety inspection data are stored and maintained.</p> <p>Since a vehicle may cross jurisdictional boundaries during a trip, this equipment package supports the concept of a last clearance event record carried on the vehicle tag. The last clearance event record reflects the results of the roadside verification action. For example, if the vehicle is pulled over in StateProvince A and undergoes credential, weight, and safety checks, the results of the clearance process are written to the vehicle's tag. If the vehicle continues the trip and passes a roadside station in StateProvince B, the StateProvince B station has access to the results of the previous pull-in because it can read the last clearance event record written by the StateProvince A roadside station. This equipment package associates high-risk cargo with the container/chassis, manifest, carrier, vehicle and driver transporting it.</p>
Roadside WIM	This equipment package measures commercial vehicle weight at high speeds. It includes both portable and permanent installations and can be used to augment electronic credentials checking or it can be a stand alone package with display.	Roadside WIM	This equipment package measures commercial vehicle weight at high speeds. It includes both portable and permanent installations and can be used to augment electronic credentials checking or it can be a stand alone package with display.
Roadway Automated Treatment	This equipment package automatically treats a roadway section based on environmental or atmospheric conditions or under center control. Treatments include fog dispersion, anti-icing chemicals, etc	Roadway Automated Treatment	This equipment package automatically treats a roadway section based on environmental or atmospheric conditions or under center center control. Treatments include fog dispersion, anti-icing chemicals, etc
Roadway Automated Vehicle Operations	This equipment package includes the field elements that control access to and egress from an automated highway and monitor and coordinate automated vehicle operations on the facility. It includes the equipment that monitors and controls the automated facility.	Roadway Automated Vehicle Operations	This equipment package includes the field elements that control access to and egress from an automated highway and monitor and coordinate automated vehicle operations on the facility. It includes the equipment that monitors and controls the automated facility.
Roadway Basic Surveillance	This equipment package monitors traffic conditions using fixed equipment such as loop detectors and CCTV cameras.	Roadway Basic Surveillance	This equipment package monitors traffic conditions using fixed equipment such as loop detectors and CCTV cameras.
Roadway Data Collection	This equipment package collects traffic, road, and environmental conditions information for use in transportation planning, research, and other off-line applications where data quality and completeness take precedence over real-time performance. This equipment package includes the sensors, supporting roadside infrastructure, and communications equipment that collects and transfers information to a center for archival.	Roadway Data Collection	This equipment package collects traffic, road, and environmental conditions information for use in transportation planning, research, and other off-line applications where data quality and completeness take precedence over real-time performance. This equipment package includes the sensors, supporting roadside infrastructure, and communications equipment that collects and transfers information to a center center for archival.
Roadway Emissions Monitoring	This equipment package monitors emissions and general air quality and communicates the collected information back to the emissions management subsystem where it can be monitored, analyzed, and used. This equipment package supports point monitoring of individual vehicle emissions as well as general monitoring of standard air quality measures.	Roadway Emissions Monitoring	This equipment package monitors emissions and general air quality and communicates the collected information back to the emissions management subsystem where it can be monitored, analyzed, and used. This equipment package supports point monitoring of individual vehicle emissions as well as general monitoring of standard air quality measures.

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Roadway Environmental Monitoring	This equipment package measures environmental conditions and communicates the collected information back to a center where it can be monitored and analyzed. A broad array of general weather and road surface information may be collected. Weather conditions that may be measured include temperature, wind, humidity, precipitation, and visibility. Surface and sub-surface sensors can measure road surface temperature, moisture, icing, salinity, and other measures.	Roadway Environmental Monitoring	This equipment package measures environmental conditions and communicates the collected information back to a center where it can be monitored and analyzed. A broad array of general weather and road surface information may be collected. Weather conditions that may be measured include temperature, wind, humidity, precipitation, and visibility. Surface and sub-surface sensors can measure road surface temperature, moisture, icing, salinity, and other measures.
Roadway Equipment Coordination	This equipment package supports direct communications between field equipment. It includes field elements that control and send data to other field elements. This includes coordination between remote sensors and field devices (e.g., Dynamic Message Signs) and coordination between the field devices themselves (e.g., direct coordination between traffic controllers that are controlling adjacent intersections.).	Roadway Equipment Coordination	This equipment package supports direct communications between field equipment. It includes field elements that control and send data to other field elements. This includes coordination between remote sensors and field devices (e.g., Dynamic Message Signs) and coordination between the field devices themselves (e.g., direct coordination between traffic controllers that are controlling adjacent intersections.).
Roadway Field Device Monitoring	This equipment package monitors the operational status of field devices and detects and reports fault conditions. Consolidated operational status (device status, configuration, and fault information) are reported to the Maintenance and Construction Management Subsystem for resolution and repair. A local interface is provided to field personnel for local monitoring and diagnostics, supporting field maintenance, repair, and replacement of field devices.	Roadway Field Device Monitoring	This equipment package monitors the operational status of field devices and detects and reports fault conditions. Consolidated operational status (device status, configuration, and fault information) are reported to the Maintenance and Construction Management Subsystem for resolution and repair. A local interface is provided to field personnel for local monitoring and diagnostics, supporting field maintenance, repair, and replacement of field devices.
Roadway Freeway Control	This equipment package includes the field equipment used to control traffic on freeways including ramp meters, interchange connector meters, mainline meters, and lane control signals.	Roadway Freeway Control	This equipment package includes the field equipment used to control traffic on freeways including ramp meters, interchange connector meters, mainline meters, and lane control signals.
Roadway HOV Control	This equipment package monitors and controls high occupancy vehicle (HOV) and high occupancy toll (HOT) lanes. It includes traffic sensors that monitor HOV lane usage and display equipment such as lane control signals that provide lane status to drivers.	Roadway HOV Control	This equipment package monitors and controls high occupancy vehicle (HOV) and high occupancy toll (HOT) lanes. It includes traffic sensors that monitor HOV lane usage and display equipment such as lane control signals that provide lane status to drivers.
Roadway Incident Detection	This equipment package provides incident detection using traffic detectors and surveillance equipment. It monitors for unusual traffic conditions that may indicate an incident or processes surveillance images, watching for potential incidents. This equipment package provides potential incident information as well as traffic flow and images to the center for processing and presentation to traffic operations personnel.	Roadway Incident Detection	This equipment package provides incident detection using traffic detectors and surveillance equipment. It monitors for unusual traffic conditions that may indicate an incident or processes surveillance images, watching for potential incidents. This equipment package provides potential incident information as well as traffic flow and images to the center for processing and presentation to traffic operations personnel.
Roadway Infrastructure Monitoring	This equipment package monitors the condition of pavement, bridges, tunnels, associated hardware, and other transportation-related infrastructure (e.g., culverts). It includes sensors that monitor the infrastructure and the communications necessary to report this data to a center or vehicle-based maintenance system.	Roadway Infrastructure Monitoring	This equipment package monitors the condition of pavement, bridges, tunnels, associated hardware, and other transportation-related infrastructure (e.g., culverts). It includes sensors that monitor the infrastructure and the communications necessary to report this data to a center or vehicle-based maintenance system.
Roadway Intersection Safety Warning	This equipment package includes field elements that monitor vehicles approaching and occupying an intersection and warns drivers when hazardous conditions are detected. It detects impending red-light or stop sign violations and potential conflicts between vehicles occupying and approaching an intersection. When a potentially hazardous condition is detected, a warning is communicated to the approaching vehicles using short range communications or signs/signals in the intersection. For signalized intersections, an interface to the signal controller allows this equipment package to monitor signal status and possibly change or extend the signal phase to reduce the risk of a collision. This equipment package is defined to support a range of implementation options including initial implementations that rely on sensors and intelligence embedded in the intersection to increase safety of a general vehicle population through implementations that communicate with and supplement a vehicle population that is equipped with vehicle-based sensors and short range communications that enable the vehicles to detect and warn their own drivers of hazardous situations.	Roadway Intersection Safety Warning	This equipment package includes field elements that monitor vehicles approaching and occupying an intersection and warns drivers when hazardous conditions are detected. It detects impending red-light or stop sign violations and potential conflicts between vehicles occupying and approaching an intersection. When a potentially hazardous condition is detected, a warning is communicated to the approaching vehicles using short range communications or signs/signals in the intersection. For signalized intersections, an interface to the signal controller allows this equipment package to monitor signal status and possibly change or extend the signal phase to reduce the risk of a collision. This equipment package is defined to support a range of implementation options including initial implementations that rely on sensors and intelligence embedded in the intersection to increase safety of a general vehicle population through implementations that communicate with and supplement a vehicle population that is equipped with vehicle-based sensors and short range communications that enable the vehicles to detect and warn their own drivers of hazardous situations.
Roadway Probe Data Communications	This equipment package collects probe data from passing vehicles that are equipped with a short range communications device. The probe data collected by this equipment package may include link travel times, average speeds, road conditions, and any other data that can be measured and communicated by passing vehicles. This equipment package consists of field equipment that communicates with passing vehicles using short range communications, collects the provided information, and sends the collected information back to a center for processing and distribution.	Roadway Probe Data Communications	This equipment package collects probe data from passing vehicles that are equipped with a short range communications device. The probe data collected by this equipment package may include link travel times, average speeds, road conditions, and any other data that can be measured and communicated by passing vehicles. This equipment package consists of field equipment that communicates with passing vehicles using short range communications, collects the provided information, and sends the collected information back to a center for processing and distribution.
Roadway Reversible Lanes	This equipment package includes field elements that monitor and control reversible lane facilities. It includes the traffic sensors, surveillance equipment, lane control signals, physical lane access controls, and other field elements that manage traffic on these facilities. It provides current reversible lane facility status information and accepts requests and control commands from the controlling center.	Roadway Reversible Lanes	This equipment package includes field elements that monitor and control reversible lane facilities. It includes the traffic sensors, surveillance equipment, lane control signals, physical lane access controls, and other field elements that manage traffic on these facilities. It provides current reversible lane facility status information and accepts requests and control commands from the controlling center .

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Roadway Safety Warning System	This equipment package monitors for potential safety hazards including wrong way drivers, debris on the road, and adverse road conditions (e.g., standing water, icy conditions) and warns approaching vehicles of potential hazards. This equipment package collects information from passing vehicles and roadside sensors and surveillance equipment, processes this information to identify potential hazards, and provides warnings to passing vehicles using field-vehicle communications.	Roadway Safety Warning System	This equipment package monitors for potential safety hazards including wrong way drivers, debris on the road, and adverse road conditions (e.g., standing water, icy conditions) and warns approaching vehicles of potential hazards. This equipment package collects information from passing vehicles and roadside sensors and surveillance equipment, processes this information to identify potential hazards, and provides warnings to passing vehicles using field-vehicle communications.
Roadway Short Range Traveler Information Communications	This equipment package includes field elements that distribute information to vehicles for in-vehicle display. The information may be provided by a center (e.g., variable information on traffic and road conditions in the vicinity of the field equipment) or it may be determined and output locally (e.g., static sign information and current indicator state information). This equipment package includes the interface to the center or field equipment that controls the information distribution and the short range communications equipment that provides information to passing vehicles.	Roadway Short Range Traveler Traveller Information Communications	This equipment package includes field elements that distribute information to vehicles for in-vehicle display. The information may be provided by a center centre (e.g., variable information on traffic and road conditions in the vicinity of the field equipment) or it may be determined and output locally (e.g., static sign information and current indicator state information). This equipment package includes the interface to the center centre or field equipment that controls the information distribution and the short range communications equipment that provides information to passing vehicles.
Roadway Signal Controls	This equipment package includes the field elements that monitor and control signalized intersections. It includes the traffic signal controllers, signal heads, detectors, and other ancillary equipment that supports traffic signal control. It also includes field masters, and equipment that supports communications with a central monitoring and/or control system, as applicable. The communications link supports upload and download of signal timings and other parameters and reporting of current intersection status. This equipment package represents the field equipment used in all levels of traffic signal control from basic actuated systems that operate on fixed timing plans through adaptive systems. It also supports all signalized intersection configurations, including those that accommodate pedestrians.	Roadway Signal Controls	This equipment package includes the field elements that monitor and control signalized intersections. It includes the traffic signal controllers, signal heads, detectors, and other ancillary equipment that supports traffic signal control. It also includes field masters, and equipment that supports communications with a central monitoring and/or control system, as applicable. The communications link supports upload and download of signal timings and other parameters and reporting of current intersection status. This equipment package represents the field equipment used in all levels of traffic signal control from basic actuated systems that operate on fixed timing plans through adaptive systems. It also supports all signalized intersection configurations, including those that accommodate pedestrians.
Roadway Signal Priority	This equipment package includes the field elements that receive signal priority and/or signal preemption requests from vehicles approaching a signalized intersection and controls traffic signals accordingly. Depending on the type of request and implementation, this equipment package may override (preempt) current signal timing or delay phase transition. In signal priority systems, the request for priority may or may not be granted, based on the overall traffic situation at the intersection.	Roadway Signal Priority	This equipment package includes the field elements that receive signal priority and/or signal preemption requests from vehicles approaching a signalized intersection and controls traffic signals accordingly. Depending on the type of request and implementation, this equipment package may override (preempt) current signal timing or delay phase transition. In signal priority systems, the request for priority may or may not be granted, based on the overall traffic situation at the intersection.
Roadway Speed Monitoring	This equipment package includes the field elements that monitor vehicle speeds. If the speed is determined to be excessive, then roadside equipment can suggest a safe driving speed. Environmental conditions may be monitored and factored into the safe speed advisories that are provided to the motorist. The operational status (state of the device, configuration, and fault data) is provided to the center. This equipment package can also provide an enforcement function, reporting speed violations to an enforcement agency.	Roadway Speed Monitoring	This equipment package includes the field elements that monitor vehicle speeds. If the speed is determined to be excessive, then roadside equipment can suggest a safe driving speed. Environmental conditions may be monitored and factored into the safe speed advisories that are provided to the motorist. The operational status (state of the device, configuration, and fault data) is provided to the center centre. This equipment package can also provide an enforcement function, reporting speed violations to an enforcement agency.
Roadway Traffic Information Dissemination	This equipment package includes field elements that provides information to drivers, including dynamic message signs and highway advisory radio.	Roadway Traffic Information Dissemination	This equipment package includes field elements that provides information to drivers, including dynamic message signs and highway advisory radio.
Roadway Work Zone Safety	This equipment package includes field elements that detect vehicle intrusions in work zones and warns crew workers and drivers of imminent encroachment. Crew movements are also monitored so that the crew can be warned of movement beyond the designated safe zone.	Roadway Work Zone Safety	This equipment package includes field elements that detect vehicle intrusions in work zones and warns crew workers and drivers of imminent encroachment. Crew movements are also monitored so that the crew can be warned of movement beyond the designated safe zone.
Roadway Work Zone Traffic Control	This equipment package controls traffic in areas of the roadway where maintenance and construction activities are underway, monitoring and controlling traffic using field equipment such as CCTV cameras, dynamic messages signs, and gates/barriers. Work zone speeds and delays are provided to the motorist prior to the work zones.	Roadway Work Zone Traffic Control	This equipment package controls traffic in areas of the roadway where maintenance and construction activities are underway, monitoring and controlling traffic using field equipment such as CCTV cameras, dynamic messages signs, and gates/barriers. Work zone speeds and delays are provided to the motorist prior to the work zones.
Safeguard System Management	This equipment package remotely monitors and controls safeguard systems for transportation facilities and infrastructure. Safeguard systems include blast shielding, exhaust systems and other automatic or remotely controlled systems intended to mitigate the impact of an incident. When access to a transportation facility is impacted by the activation of a safeguard system, travelers and appropriate subsystems are notified.	Safeguard System Management	This equipment package remotely monitors and controls safeguard systems for transportation facilities and infrastructure. Safeguard systems include blast shielding, exhaust systems and other automatic or remotely controlled systems intended to mitigate the impact of an incident. When access to a transportation facility is impacted by the activation of a safeguard system, travelers travellers and appropriate subsystems are notified.
Service Patrol Management	This equipment package supports dispatch and communication with roadway service patrol vehicles that monitor roads to aid motorists, offering rapid response to minor incidents.	Service Patrol Management	This equipment package supports dispatch and communication with roadway service patrol vehicles that monitor roads to aid motorists, offering rapid response to minor incidents.

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Standard Rail Crossing	This equipment package manages highway traffic at highway-rail intersections (HRIs) where operational requirements do not dictate advanced features (e.g., where rail operational speeds are less than 80 miles per hour). Either passive (e.g., the crossbuck sign) or active warning systems (e.g., flashing lights and gates) are supported depending on the specific requirements for each intersection. These traditional HRI warning systems may also be augmented with other standard traffic management devices. The warning systems are activated on notification of an approaching train by interfaced wayside equipment. The equipment at the HRI may also be interconnected with adjacent signalized intersections so that local control can be adapted to highway-rail intersection activities. Health monitoring of the HRI equipment and interfaces is performed; detected abnormalities are reported through interfaces to the wayside interface equipment and the traffic management subsystem.	Standard Rail Crossing	This equipment package manages highway traffic at highway-rail intersections (HRIs) where operational requirements do not dictate advanced features (e.g., where rail operational speeds are less than 80 miles per hour). Either passive (e.g., the crossbuck sign) or active warning systems (e.g., flashing lights and gates) are supported depending on the specific requirements for each intersection. These traditional HRI warning systems may also be augmented with other standard traffic management devices. The warning systems are activated on notification of an approaching train by interfaced wayside equipment. The equipment at the HRI may also be interconnected with adjacent signalized intersections so that local control can be adapted to highway-rail intersection activities. Health monitoring of the HRI equipment and interfaces is performed; detected abnormalities are reported through interfaces to the wayside interface equipment and the traffic management subsystem.
TMC Automated Vehicle Operations	This equipment package remotely monitors and controls an automated highway facility. It monitors automated highway system operation and provides use and control parameters that control system operation. It could be used to monitor and control any automated facility with properly equipped vehicles, including applications that automate vehicle control in work zones.	TMC Automated Vehicle Operations	This equipment package remotely monitors and controls an automated highway facility. It monitors automated highway system operation and provides use and control parameters that control system operation. It could be used to monitor and control any automated facility with properly equipped vehicles, including applications that automate vehicle control in work zones.
TMC Demand Management Coordination	This equipment package provides the capability to gather information on regional toll, parking, and transit usage and request changes to pricing and other mechanisms to manage overall transportation demand.	TMC Demand Management Coordination	This equipment package provides the capability to gather information on regional toll, parking, and transit usage and request changes to pricing and other mechanisms to manage overall transportation demand.
TMC Environmental Monitoring	This equipment package assimilates current and forecast road conditions and surface weather information using a combination of weather service provider information, information collected by other centers such as the Maintenance and Construction Management Subsystem, and data collected from environmental sensors deployed on and about the roadway. The collected environmental information is monitored and presented to the operator. This information can be used to issue general traveler advisories and support location specific warnings to drivers. Other equipment packages process the collected information and provide decision support.	TMC Environmental Monitoring	This equipment package assimilates current and forecast road conditions and surface weather information using a combination of weather service provider information, information collected by other centers centres such as the Maintenance and Construction Management Subsystem, and data collected from environmental sensors deployed on and about the roadway. The collected environmental information is monitored and presented to the operator. This information can be used to issue general traveler traveller advisories and support location specific warnings to drivers. Other equipment packages process the collected information and provide decision support.
TMC Evacuation Support	This equipment package supports development, coordination, and execution of special traffic management strategies during evacuation and subsequent reentry of a population in the vicinity of a disaster or major emergency. A traffic management strategy is developed based on anticipated demand, the capacity of the road network including access to and from the evacuation routes, and existing and forecast conditions. The strategy supports efficient evacuation and also protects and optimizes movement of response vehicles and other resources that are responding to the emergency. This equipment package coordinates the evacuation with the Traffic Management Subsystem (representing centers in other affected jurisdictions) and the Emergency Management Subsystem.	TMC Evacuation Support	This equipment package supports development, coordination, and execution of special traffic management strategies during evacuation and subsequent reentry of a population in the vicinity of a disaster or major emergency. A traffic management strategy is developed based on anticipated demand, the capacity of the road network including access to and from the evacuation routes, and existing and forecast conditions. The strategy supports efficient evacuation and also protects and optimizes movement of response vehicles and other resources that are responding to the emergency. This equipment package coordinates the evacuation with the Traffic Management Subsystem (representing centers centres in other affected jurisdictions) and the Emergency Management Subsystem.
TMC Freeway Management	This equipment package provides center monitoring and control of freeway traffic control systems including ramp control, interchange control, and mainline lane control systems. Approaches covered include ramp metering, interchange connector metering, overhead lane control signals, freeway mainline metering, and variable speed control systems.	TMC Freeway Management	This equipment package provides center centre monitoring and control of freeway traffic control systems including ramp control, interchange control, and mainline lane control systems. Approaches covered include ramp metering, interchange connector metering, overhead lane control signals, freeway mainline metering, and variable speed control systems.
TMC HOV Lane Management	This equipment package provides center monitoring and control of HOV lanes. It coordinates freeway ramp meters and connector signals with HOV lane usage signals to provide preferential treatment to HOV lanes. In advanced implementations, it automatically detects HOV violators.	TMC HOV Lane Management	This equipment package provides center centre monitoring and control of HOV lanes. It coordinates freeway ramp meters and connector signals with HOV lane usage signals to provide preferential treatment to HOV lanes. In advanced implementations, it automatically detects HOV violators.
TMC Incident Detection	This equipment package identifies and reports incidents to Traffic Operations Personnel. It remotely monitors and controls traffic sensor and surveillance systems that support incident detection and verification. It analyzes and reduces the collected sensor and surveillance data, external alerting and advisory and incident reporting systems, anticipated demand information from intermodal freight depots, border crossings, special event information, and identifies and reports incidents and hazardous conditions	TMC Incident Detection	This equipment package identifies and reports incidents to Traffic Operations Personnel. It remotely monitors and controls traffic sensor and surveillance systems that support incident detection and verification. It analyzes and reduces the collected sensor and surveillance data, external alerting and advisory and incident reporting systems, anticipated demand information from intermodal freight depots, border crossings, special event information, and identifies and reports incidents and hazardous conditions
TMC Incident Dispatch Coordination/Communication	This equipment package formulates and manages an incident response that takes into account the incident potential, incident impacts, and resources required for incident management. It supports dispatch of emergency response and service vehicles as well as coordination with other cooperating agencies. It provides access to traffic management resources that provide surveillance of the incident, traffic control in the surrounding area, and support for the incident response. It monitors the incident response and collects performance measures such as incident response and clearance times.	TMC Incident Dispatch Coordination/Communication	This equipment package formulates and manages an incident response that takes into account the incident potential, incident impacts, and resources required for incident management. It supports dispatch of emergency response and service vehicles as well as coordination with other cooperating agencies. It provides access to traffic management resources that provide surveillance of the incident, traffic control in the surrounding area, and support for the incident response. It monitors the incident response and collects performance measures such as incident response and clearance times.

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
TMC In-Vehicle Signing Management	This equipment package controls and monitors field equipment that supports in-vehicle signing. Sign information that may include static regulatory, service, and directional sign information as well as variable information such as traffic and road conditions can be provided to the field equipment, which uses short range communications to send the information to in-vehicle equipment. Information that is currently being communicated to passing vehicles and the operational status of the field equipment is monitored by this equipment package. The operational status of the field equipment is reported to operations personnel.	TMC In-Vehicle Signing Management	This equipment package controls and monitors field equipment that supports in-vehicle signing. Sign information that may include static regulatory, service, and directional sign information as well as variable information such as traffic and road conditions can be provided to the field equipment, which uses short range communications to send the information to in-vehicle equipment. Information that is currently being communicated to passing vehicles and the operational status of the field equipment is monitored by this equipment package. The operational status of the field equipment is reported to operations personnel.
TMC Lighting System Control	This equipment package provides the capability for traffic managers to monitor and manage the electrical lighting systems along the roadside. This capability includes implementing control plans for lighting systems that may be activated by time-of-day plans or by activating changes to the lighting based on traffic or incidents.	TMC Lighting System Control	This equipment package provides the capability for traffic managers to monitor and manage the electrical lighting systems along the roadside. This capability includes implementing control plans for lighting systems that may be activated by time-of-day plans or by activating changes to the lighting based on traffic or incidents.
TMC Multimodal Coordination	This equipment package supports center-to-center coordination between the Traffic Management and Transit Management Subsystems. It monitors transit operations and provides traffic signal priority for transit vehicles on request from the Transit Management Subsystem.	TMC Multimodal Coordination	This equipment package supports center-to-center coordination between the Traffic Management and Transit Management Subsystems. It monitors transit operations and provides traffic signal priority for transit vehicles on request from the Transit Management Subsystem.
TMC Multimodal Crossing Management	This equipment package remotely monitors and manages multimodal crossings, including draw bridges and other crossings between highway traffic and other modes. Equipment controlled includes warning lights, gates, dynamic message signs, and other systems that provide driver information and control traffic at multimodal crossings. Railroad grade crossings are covered by the HRI Traffic Management equipment package.	TMC Multimodal Crossing Management	This equipment package remotely monitors and manages multimodal crossings, including draw bridges and other crossings between highway traffic and other modes. Equipment controlled includes warning lights, gates, dynamic message signs, and other systems that provide driver information and control traffic at multimodal crossings. Railroad grade crossings are covered by the HRI Traffic Management equipment package.
TMC Probe Information Collection	This equipment package collects, assimilates, and disseminates vehicle probe data collected from roadside short range communications equipment and centers controlling transit vehicles, toll collection points, and route-guided vehicles. It estimates traffic and road conditions based on the aggregated probe data and disseminates this information to other centers.	TMC Probe Information Collection	This equipment package collects, assimilates, and disseminates vehicle probe data collected from roadside short range communications equipment and centers controlling transit vehicles, toll collection points, and route-guided vehicles. It estimates traffic and road conditions based on the aggregated probe data and disseminates this information to other centers .
TMC Regional Traffic Management	This equipment package supports coordination between traffic management centers in order to share traffic information between centers as well as control of traffic management field equipment. This coordination supports wide area optimization and regional coordination that spans jurisdictional boundaries; for example, coordinated signal control in a metropolitan area or coordination between freeway operations and arterial signal control within a corridor.	TMC Regional Traffic Management	This equipment package supports coordination between traffic management centers in order to share traffic information between centers as well as control of traffic management field equipment. This coordination supports wide area optimization and regional coordination that spans jurisdictional boundaries; for example, coordinated signal control in a metropolitan area or coordination between freeway operations and arterial signal control within a corridor.
TMC Reversible Lane Management	This equipment package remotely monitors and controls reversible lanes. It provides an interface to reversible lane field equipment (traffic sensors, surveillance equipment, lane control signals, physical lane access controls, etc.) and to traffic operations personnel to support central monitoring and control of these facilities.	TMC Reversible Lane Management	This equipment package remotely monitors and controls reversible lanes. It provides an interface to reversible lane field equipment (traffic sensors, surveillance equipment, lane control signals, physical lane access controls, etc.) and to traffic operations personnel to support central monitoring and control of these facilities.
TMC Signal Control	This equipment package provides the capability for traffic managers to monitor and manage the traffic flow at signalized intersections. This capability includes analyzing and reducing the collected data from traffic surveillance equipment and developing and implementing control plans for signalized intersections. Control plans may be developed and implemented that coordinate signals at many intersections under the domain of a single traffic management subsystem and are responsive to traffic conditions and adapt to support incidents, preemption and priority requests, pedestrian crossing calls, etc.	TMC Signal Control	This equipment package provides the capability for traffic managers to monitor and manage the traffic flow at signalized intersections. This capability includes analyzing and reducing the collected data from traffic surveillance equipment and developing and implementing control plans for signalized intersections. Control plans may be developed and implemented that coordinate signals at many intersections under the domain of a single traffic management subsystem and are responsive to traffic conditions and adapt to support incidents, preemption and priority requests, pedestrian crossing calls, etc.
TMC Speed Monitoring	This equipment package remotely monitors and controls speed monitoring and speed warning systems. It remotely monitors vehicle speeds and presents this information to traffic operations personnel. It configures and controls the speed monitoring and warning equipment that provides safe speed advisories to the motorist. This equipment package can also notify an enforcement agency if excessive speeds are identified.	TMC Speed Monitoring	This equipment package remotely monitors and controls speed monitoring and speed warning systems. It remotely monitors vehicle speeds and presents this information to traffic operations personnel. It configures and controls the speed monitoring and warning equipment that provides safe speed advisories to the motorist. This equipment package can also notify an enforcement agency if excessive speeds are identified.
TMC Traffic Information Dissemination	This equipment package disseminates traffic and road conditions, closure and detour information, incident information, driver advisories, and other traffic-related data to other centers, the media, and driver information systems. It monitors and controls driver information system field equipment including dynamic message signs and highway advisory radio, managing dissemination of driver information through these systems.	TMC Traffic Information Dissemination	This equipment package disseminates traffic and road conditions, closure and detour information, incident information, driver advisories, and other traffic-related data to other centers , the media, and driver information systems. It monitors and controls driver information system field equipment including dynamic message signs and highway advisory radio, managing dissemination of driver information through these systems.

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
TMC Traffic Management Decision Support	This equipment package recommends courses of action to the traffic operator based on current and forecast road and traffic conditions. Traffic incidents, special events, maintenance activities and other events or conditions that impact capacity or demand are monitored. Historical data and models are used to compare the impact of potential courses of action and make recommendations to the operator. Decisions are supported through presentation of filtered and fused network-wide road and traffic conditions that identify network imbalances and recommended courses of action. The recommended actions may include predefined incident response plans, signal timing plan changes, DMS/HAR messages, and freeway control strategies including ramp metering, interchange control, and lane controls. Multimodal strategies may also be recommended that include suggested transit strategies and suggested route and mode choices for travelers. Once a course of action is selected, other equipment packages implement these actions within the traffic management center and coordinate the response with other centers in the region.	TMC Traffic Management Decision Support	This equipment package recommends courses of action to the traffic operator based on current and forecast road and traffic conditions. Traffic incidents, special events, maintenance activities and other events or conditions that impact capacity or demand are monitored. Historical data and models are used to compare the impact of potential courses of action and make recommendations to the operator. Decisions are supported through presentation of filtered and fused network-wide road and traffic conditions that identify network imbalances and recommended courses of action. The recommended actions may include predefined incident response plans, signal timing plan changes, DMS/HAR messages, and freeway control strategies including ramp metering, interchange control, and lane controls. Multimodal strategies may also be recommended that include suggested transit strategies and suggested route and mode choices for travelers travellers. Once a course of action is selected, other equipment packages implement these actions within the traffic management center centre and coordinate the response with other centers centres in the region.
TMC Traffic Network Performance Evaluation	This equipment package measures traffic network performance and predicts travel demand patterns to support traffic flow optimization, demand management, and incident management. This equipment package collects traffic data from sensors and surveillance equipment as well as input from other traffic management centers, emissions management, transit operations, and event promoters and uses this information to measure traffic network performance. It collects route planning information from information service providers and integrates and uses this information to predict future traffic conditions. The planned control strategies can be passed back to the Information Service Provider so that the intended strategies can be reflected in future route planning.	TMC Traffic Network Performance Evaluation	This equipment package measures traffic network performance and predicts travel demand patterns to support traffic flow optimization, demand management, and incident management. This equipment package collects traffic data from sensors and surveillance equipment as well as input from other traffic management centers centres, emissions management, transit operations, and event promoters and uses this information to measure traffic network performance. It collects route planning information from information service providers and integrates and uses this information to predict future traffic conditions. The planned control strategies can be passed back to the Information Service Provider so that the intended strategies can be reflected in future route planning.
TMC Transportation Operations Data Collection	This equipment package collects real-time information on the state of the regional transportation system for operational use by the center. It includes communication and data processing capabilities that provide real-time access to regional transportation information that is stored in a regional repository. This equipment package establishes communications with the repository, requests or subscribes to information relevant to the center, receives and processes the information, and then distributes the information to other equipment packages and the system operator for use. Although request and subscription flows are not explicitly included in the National ITS Architecture, interactive data services are supported by this equipment package.	TMC Transportation Operations Data Collection	This equipment package collects real-time information on the state of the regional transportation system for operational use by the center centre. It includes communication and data processing capabilities that provide real-time access to regional transportation information that is stored in a regional repository. This equipment package establishes communications with the repository, requests or subscribes to information relevant to the center centre, receives and processes the information, and then distributes the information to other equipment packages and the system operator for use. Although request and subscription flows are not explicitly included in the National ITS Architecture for Canada, interactive data services are supported by this equipment package.
TMC Work Zone Traffic Management	This equipment package coordinates work plans with maintenance systems so that work zones are established that have minimum traffic impact. Traffic control strategies are implemented to further mitigate traffic impacts associated with work zones that are established, providing work zone information on driver information systems such as dynamic message signs.	TMC Work Zone Traffic Management	This equipment package coordinates work plans with maintenance systems so that work zones are established that have minimum traffic impact. Traffic control strategies are implemented to further mitigate traffic impacts associated with work zones that are established, providing work zone information on driver information systems such as dynamic message signs.
Toll Administration	This equipment package provides administration and management of an electronic toll collection system. It provides the back office functions that support enrollment, pricing, payment reconciliation with financial institutions, and violation notification to enforcement agencies. It also supports dynamic pricing to support demand management. Secure communications with the financial infrastructure and distributed toll plazas support electronic payments and other ancillary requirements such as lost/stolen tag identification and management.	Toll Administration	This equipment package provides administration and management of an electronic toll collection system. It provides the back office functions that support enrollment, pricing, payment reconciliation with financial institutions, and violation notification to enforcement agencies. It also supports dynamic pricing to support demand management. Secure communications with the financial infrastructure and distributed toll plazas support electronic payments and other ancillary requirements such as lost/stolen tag identification and management.
Toll Data Collection	This equipment package collects and stores toll information that is collected in the course of toll operations performed by the Toll Administration Subsystem. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.	Toll Data Collection	This equipment package collects and stores toll information that is collected in the course of toll operations performed by the Toll Administration Subsystem. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.
Toll Operator Alert	This equipment package provides wide-area alerts (safety/security broadcasts, child abductions, etc.) to toll operators. It provides the capability to monitor for active alerts and presents these alerts to administrative staff (the "Toll Administrator") and forwards these alerts to toll operators at the toll plazas/toll collection facilities. The Toll Administrator determines which alerts should be forwarded to toll operators and can inject alerts that are identified through other means.	Toll Operator Alert	This equipment package provides wide-area alerts (safety/security broadcasts, child abductions, etc.) to toll operators. It provides the capability to monitor for active alerts and presents these alerts to administrative staff (the "Toll Administrator") and forwards these alerts to toll operators at the toll plazas/toll collection facilities. The Toll Administrator determines which alerts should be forwarded to toll operators and can inject alerts that are identified through other means.
Toll Plaza Toll Collection	This equipment package provides toll plazas the capability to identify properly equipped vehicles, collect electronic tolls, and provide a positive indication to the driver that a toll was collected. Violators are identified and images are collected. Toll transactions are stored and reported to the Toll Administration Subsystem.	Toll Plaza Toll Collection	This equipment package provides toll plazas the capability to identify properly equipped vehicles, collect electronic tolls, and provide a positive indication to the driver that a toll was collected. Violators are identified and images are collected. Toll transactions are stored and reported to the Toll Administration Subsystem.
Traffic and Roadside Data Archival	This equipment package collects and archives traffic, roadway, and environmental information for use in off-line planning, research, and analysis. The equipment package controls and collects information directly from equipment at the roadside, reflecting the deployment of traffic detectors that are used primarily for traffic monitoring and planning purposes rather than for traffic management.	Traffic and Roadside Data Archival	This equipment package collects and archives traffic, roadway, and environmental information for use in off-line planning, research, and analysis. The equipment package controls and collects information directly from equipment at the roadside, reflecting the deployment of traffic detectors that are used primarily for traffic monitoring and planning purposes rather than for traffic management.

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Traffic Data Collection	This equipment package collects and stores traffic information that is collected in the course of traffic operations performed by the Traffic Management Subsystem. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.	Traffic Data Collection	This equipment package collects and stores traffic information that is collected in the course of traffic operations performed by the Traffic Management Subsystem. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.
Traffic Maintenance	This equipment package monitors the operational status of field equipment and detects failures. It presents field equipment status to Traffic Operations Personnel and reports failures to the Maintenance and Construction Management Subsystem. The equipment package tracks the repair or replacement of the failed equipment. The entire range of ITS field equipment may be monitored by this equipment package including sensors (traffic, infrastructure, environmental, security, speed, etc.) and devices (highway advisory radio, dynamic message signs, automated roadway treatment systems, barrier and safeguard systems, cameras, traffic signals and override equipment, ramp meters, beacons, security surveillance equipment, etc.).	Traffic Maintenance	This equipment package monitors the operational status of field equipment and detects failures. It presents field equipment status to Traffic Operations Personnel and reports failures to the Maintenance and Construction Management Subsystem. The equipment package tracks the repair or replacement of the failed equipment. The entire range of ITS field equipment may be monitored by this equipment package including sensors (traffic, infrastructure, environmental, security, speed, etc.) and devices (highway advisory radio, dynamic message signs, automated roadway treatment systems, barrier and safeguard systems, cameras, traffic signals and override equipment, ramp meters, beacons, security surveillance equipment, etc.).
Transit Center Fare Management	This equipment package manages fare collection and passenger load management at the transit center. It provides the back office functions that support transit fare collection, supporting payment reconciliation with links to financial institutions and enforcement agencies for fare violations. It collects data required to determine accurate ridership levels, establish fares, and distribute fare information. This equipment package loads fare data into the vehicle prior to the beginning of normal operations and unloads fare collection data from the vehicle at the close out of normal operations.	Transit Center Centre Fare Management	This equipment package manages fare collection and passenger load management at the transit center centre. It provides the back office functions that support transit fare collection, supporting payment reconciliation with links to financial institutions and enforcement agencies for fare violations. It collects data required to determine accurate ridership levels, establish fares, and distribute fare information. This equipment package loads fare data into the vehicle prior to the beginning of normal operations and unloads fare collection data from the vehicle at the close out of normal operations.
Transit Center Fixed-Route Operations	This equipment package manages fixed route transit operations. It supports creation of schedules, blocks and runs for fixed and flexible route transit services. The package allows fixed-route and flexible-route transit services to disseminate schedules and automatically updates customer service operator systems with the most current schedule information. This equipment package also supports automated dispatch of transit vehicles. Current vehicle schedule adherence and optimum scenarios for schedule adjustment are also provided. This equipment package also receives and processes transit vehicle loading data.	Transit Center Centre Fixed-Route Operations	This equipment package manages fixed route transit operations. It supports creation of schedules, blocks and runs for fixed and flexible route transit services. The package allows fixed-route and flexible-route transit services to disseminate schedules and automatically updates customer service operator systems with the most current schedule information. This equipment package also supports automated dispatch of transit vehicles. Current vehicle schedule adherence and optimum scenarios for schedule adjustment are also provided. This equipment package also receives and processes transit vehicle loading data.
Transit Center Information Services	This equipment package collects the latest available information for a transit service and makes it available to transit customers and to Information Service Providers for further distribution. Customers are provided information at transit stops and other public transportation areas before they embark and on-board the transit vehicle once they are enroute. Information provided can include the latest available information on transit routes, schedules, transfer options, fares, real-time schedule adherence, current incidents, weather conditions, yellow pages, and special events. In addition to general service information, tailored information (e.g., itineraries) are provided to individual transit users.	Transit Center Centre Information Services	This equipment package collects the latest available information for a transit service and makes it available to transit customers and to Information Service Providers for further distribution. Customers are provided information at transit stops and other public transportation areas before they embark and on-board the transit vehicle once they are enroute. Information provided can include the latest available information on transit routes, schedules, transfer options, fares, real-time schedule adherence, current incidents, weather conditions, yellow pages business directory service, and special events. In addition to general service information, tailored information (e.g., itineraries) are provided to individual transit users.
Transit Center Multi-Modal Coordination	The equipment package supports transit service coordination between transit properties and coordinates with other surface and air transportation modes. As part of service coordination, this equipment package shares schedule and trip information, as well as transit transfer cluster (a collection of stop points, stations, or terminals where transfers can be made conveniently) and transfer point information between Multimodal Transportation Service Providers, Transit Agencies, and ISPs. An interface to Traffic Management also supports demand management strategies.	Transit Center Centre Multi-Modal Coordination	The equipment package supports transit service coordination between transit properties and coordinates with other surface and air transportation modes. As part of service coordination, this equipment package shares schedule and trip information, as well as transit transfer cluster (a collection of stop points, stations, or terminals where transfers can be made conveniently) and transfer point information between Multimodal Transportation Service Providers, Transit Agencies, and ISPs. An interface to Traffic Management also supports demand management strategies.
Transit Center Paratransit Operations	This equipment package manages demand responsive transit services, including paratransit services. It supports planning and scheduling of these services, allowing paratransit and other demand response transit services to plan efficient routes and better estimate arrival times. This equipment package also supports automated dispatch of paratransit vehicles and tracks passenger pick-ups and drop-offs. Customer service operator systems are updated with the most current schedule information.	Transit Center Centre Paratransit Operations	This equipment package manages demand responsive transit services, including paratransit services. It supports planning and scheduling of these services, allowing paratransit and other demand response transit services to plan efficient routes and better estimate arrival times. This equipment package also supports automated dispatch of paratransit vehicles and tracks passenger pick-ups and drop-offs. Customer service operator systems are updated with the most current schedule information.
Transit Center Passenger Counting	This equipment package receives and processes transit vehicle loading data using two-way communications from equipped transit vehicles.	Transit Center Centre Passenger Counting	This equipment package receives and processes transit vehicle loading data using two-way communications from equipped transit vehicles.
Transit Center Security	This equipment package monitors transit vehicle operator or traveler activated alarms received from on-board a transit vehicle. It supports transit vehicle operator authentication and provides the capability to remotely disable a transit vehicle. This equipment package also includes the capability to alert operators and police to potential incidents identified by these security features.	Transit Center Centre Security	This equipment package monitors transit vehicle operator or traveler traveller activated alarms received from on-board a transit vehicle. It supports transit vehicle operator authentication and provides the capability to remotely disable a transit vehicle. This equipment package also includes the capability to alert operators and police to potential incidents identified by these security features.
Transit Center Signal Priority	The equipment package monitors transit schedule performance and generates requests for transit priority on routes and at certain intersections. This equipment package may coordinate with the Traffic Management Subsystem to provide transit priority along the selected route. It also coordinates with the Transit Vehicle Subsystem to monitor and manage local transit signal priority requests at individual intersections.	Transit Center Centre Signal Priority	The equipment package monitors transit schedule performance and generates requests for transit priority on routes and at certain intersections. This equipment package may coordinate with the Traffic Management Subsystem to provide transit priority along the selected route. It also coordinates with the Transit Vehicle Subsystem to monitor and manage local transit signal priority requests at individual intersections.

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Transit Center Vehicle Tracking	This equipment package monitors transit vehicle location. The location information is collected via a data communication link between the transit vehicles and the transit center. The location information is presented to the transit operator on a digitized map of the transit service area. The location data may be used to determine real time schedule adherence and update the transit system’s schedule in real-time. The real-time schedule information is provided to Information Service Providers and the Transit Center Information Services equipment package, which furnish the information to travelers.	Transit Center Centre Vehicle Tracking	This equipment package monitors transit vehicle location. The location information is collected via a data communication link between the transit vehicles and the transit center centre. The location information is presented to the transit operator on a digitized map of the transit service area. The location data may be used to determine real time schedule adherence and update the transit system’s schedule in real-time. The real-time schedule information is provided to Information Service Providers and the Transit Center Centre Information Services equipment package, which furnish the information to traveler travellers.
Transit Data Collection	This equipment package collects and stores transit information that is collected in the course of transit operations performed by the Transit Management Subsystem. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.	Transit Data Collection	This equipment package collects and stores transit information that is collected in the course of transit operations performed by the Transit Management Subsystem. This data can be used directly by operations personnel or it can be made available to other data users and archives in the region.
Transit Environmental Monitoring	This equipment package assimilates current and forecast road conditions and surface weather information from a variety of sources, including both weather service providers and vehicle probes. The collected environmental information is monitored and forwarded to other agencies to more effectively manage transit operations.	Transit Environmental Monitoring	This equipment package assimilates current and forecast road conditions and surface weather information from a variety of sources, including both weather service providers and vehicle probes. The collected environmental information is monitored and forwarded to other agencies to more effectively manage transit operations.
Transit Evacuation Support	This equipment package manages transit resources to support evacuation and subsequent reentry of a population in the vicinity of a disaster or other emergency. It supports coordination of regional evacuation plans, identifying the transit role in a regional evacuation and identifying transit resources that would be used. During an evacuation, this equipment package coordinates the use of transit and school bus fleets, supporting evacuation of those with special needs and the general population. Transit service and fare schedules are adjusted and updated service and fare information is made available through traveler information systems. This equipment package coordinates the functions in other Transit equipment packages to support these requirements.	Transit Evacuation Support	This equipment package manages transit resources to support evacuation and subsequent reentry of a population in the vicinity of a disaster or other emergency. It supports coordination of regional evacuation plans, identifying the transit role in a regional evacuation and identifying transit resources that would be used. During an evacuation, this equipment package coordinates the use of transit and school bus fleets, supporting evacuation of those with special needs and the general population. Transit service and fare schedules are adjusted and updated service and fare information is made available through traveler traveller information systems. This equipment package coordinates the functions in other Transit equipment packages to support these requirements.
Transit Garage Maintenance	This equipment package provides advanced maintenance functions for the transit property. It collects operational and maintenance data from transit vehicles, manages vehicle service histories, and monitors operators and vehicles. It collects vehicle mileage data and uses it to automatically generate preventative maintenance schedules for each vehicle by utilizing vehicle tracking data from a prerequisite vehicle tracking equipment package. In addition, it provides information to proper service personnel to support maintenance activities and records and verifies that maintenance work was performed.	Transit Garage Maintenance	This equipment package provides advanced maintenance functions for the transit property. It collects operational and maintenance data from transit vehicles, manages vehicle service histories, and monitors operators and vehicles. It collects vehicle mileage data and uses it to automatically generate preventative maintenance schedules for each vehicle by utilizing vehicle tracking data from a prerequisite vehicle tracking equipment package. In addition, it provides information to proper service personnel to support maintenance activities and records and verifies that maintenance work was performed.
Transit Transportation Operations Data Collection	This equipment package collects real-time information on the state of the regional transportation system for operational use by the center. It includes communication and data processing capabilities that provide real-time access to regional transportation information that is stored in a regional repository. This equipment package establishes communications with the repository, requests or subscribes to information relevant to the center, receives and processes the information, and then distributes the information to other equipment packages and the system operator for use. Although request and subscription flows are not explicitly included in the National ITS Architecture, interactive data services are supported by this equipment package.	Transit Transportation Operations Data Collection	This equipment package collects real-time information on the state of the regional transportation system for operational use by the center centre. It includes communication and data processing capabilities that provide real-time access to regional transportation information that is stored in a regional repository. This equipment package establishes communications with the repository, requests or subscribes to information relevant to the center centre, receives and processes the information, and then distributes the information to other equipment packages and the system operator for use. Although request and subscription flows are not explicitly included in the National ITS Architecture for Canada , interactive data services are supported by this equipment package.
Transit Vehicle Assignment	This equipment package assigns individual transit vehicles to vehicle blocks and downloads this information to the transit vehicle. It also provides an exception handling process for the vehicle assignment function to generate new, supplemental vehicle assignments when required by changes during the operating day. It provides an inventory management function for the transit facility which stores functional attributes about each of the vehicles owned by the transit operator. These attributes permit the planning and assignment functions to match vehicles with routes based on suitability for the types of service required by the particular routes.	Transit Vehicle Assignment	This equipment package assigns individual transit vehicles to vehicle blocks and downloads this information to the transit vehicle. It also provides an exception handling process for the vehicle assignment function to generate new, supplemental vehicle assignments when required by changes during the operating day. It provides an inventory management function for the transit facility which stores functional attributes about each of the vehicles owned by the transit operator. These attributes permit the planning and assignment functions to match vehicles with routes based on suitability for the types of service required by the particular routes.
Transit Vehicle Operator Assignment	This equipment package automates and supports the assignment of transit vehicle operators to runs. It assigns operators to runs in a fair manner while minimizing labor and overtime services, considering operator preferences and qualifications, and automatically tracking and validating the number of work hours performed by each individual operator. It also provides an exception handling process for the operator assignment function to generate supplemental operator assignments when required by changes during the operating day.	Transit Vehicle Operator Assignment	This equipment package automates and supports the assignment of transit vehicle operators to runs. It assigns operators to runs in a fair manner while minimizing labor and overtime services, considering operator preferences and qualifications, and automatically tracking and validating the number of work hours performed by each individual operator. It also provides an exception handling process for the operator assignment function to generate supplemental operator assignments when required by changes during the operating day.
Traveler Secure Area Sensor Monitoring	This equipment package includes sensors that monitor conditions of secure areas that are frequented by travelers (i.e., transit stops, transit stations, rest areas, park and ride lots, modal interchange facilities, etc). The equipment package monitors areas for environmental threats (e.g., chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors), intrusion and motion, and object detection.	Traveler Traveller Secure Area Sensor Monitoring	This equipment package includes sensors that monitor conditions of secure areas that are frequented by traveler travellers (i.e., transit stops, transit stations, rest areas, park and ride lots, modal interchange facilities, etc). The equipment package monitors areas for environmental threats (e.g., chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors), intrusion and motion, and object detection.

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Traveler Secure Area Surveillance	This equipment package manages surveillance equipment that monitors secure areas in the transportation system that are frequented by travelers (i.e., transit stops, transit stations, rest areas, park and ride lots, modal interchange facilities, etc). This package collects the images and audio inputs at the secure area and provides the surveillance information to the Emergency Management Subsystem. The equipment package also provides local processing of the video or audio information, providing processed or analyzed results to the Emergency Management Subsystem. This equipment package provides the same functions as the Field Secure Area Surveillance equipment package.	Traveler Traveller Secure Area Surveillance	This equipment package manages surveillance equipment that monitors secure areas in the transportation system that are frequented by travelers travellers (i.e., transit stops, transit stations, rest areas, park and ride lots, modal interchange facilities, etc). This package collects the images and audio inputs at the secure area and provides the surveillance information to the Emergency Management Subsystem. The equipment package also provides local processing of the video or audio information, providing processed or analyzed results to the Emergency Management Subsystem. This equipment package provides the same functions as the Field Secure Area Surveillance equipment package.
Traveler Telephone Information	This equipment package services voice-based traveler requests for information that supports traveler telephone information systems like 511. The equipment package takes requests for traveler information, which could be voice-formatted traveler requests, dual-tone multifrequency (DTMF)-based requests, or a simple traveler information request, and returns the requested traveler information in the proper format. In addition to servicing requests for traveler information, this equipment package also collects and forwards alerts and advisories to traveler telephone information systems.	Traveler Traveller Telephone Information	This equipment package services voice-based traveler traveller requests for information that supports traveler traveller telephone information systems like 511. The equipment package takes requests for traveler traveller information, which could be voice-formatted traveler traveller requests, dual-tone multifrequency (DTMF)-based requests, or a simple traveler traveller information request, and returns the requested traveler traveller information in the proper format. In addition to servicing requests for traveler traveller information, this equipment package also collects and forwards alerts and advisories to traveler traveller telephone information systems.
Vehicle Automated Operations	This equipment package provides the capability for "hands-off" and "feet off" operation of an equipped vehicle on the automated portion of the highway system including the longitudinal control, lateral control for lane change/merge and roadway departure, regulating the vehicle speed and steering control, and sensing impending hazards and responding appropriately. These capabilities are provided by systems on board the vehicle to regulate longitudinal and lateral control maneuvers, including acceleration, braking, and steering functions. The capability to control access to the automated highway system is provided through an automated check-in procedure in which the vehicle and driver are checked for their fitness.	Vehicle Automated Operations	This equipment package provides the capability for "hands-off" and "feet off" operation of an equipped vehicle on the automated portion of the highway system including the longitudinal control, lateral control for lane change/merge and roadway departure, regulating the vehicle speed and steering control, and sensing impending hazards and responding appropriately. These capabilities are provided by systems on board the vehicle to regulate longitudinal and lateral control maneuvers, including acceleration, braking, and steering functions. The capability to control access to the automated highway system is provided through an automated check-in procedure in which the vehicle and driver are checked for their fitness.
Vehicle Autonomous Route Guidance	This equipment package provides route planning and turn by turn route guidance to a driver using an on-board digital map. The equipment package includes autonomous systems that are not configured to receive or process real-time information. In advanced implementations, this equipment package receives real-time traffic and road conditions information from the infrastructure and factors this real-time information into its route selection and guidance algorithms.	Vehicle Autonomous Route Guidance	This equipment package provides route planning and turn by turn route guidance to a driver using an on-board digital map. The equipment package includes autonomous systems that are not configured to receive or process real-time information. In advanced implementations, this equipment package receives real-time traffic and road conditions information from the infrastructure and factors this real-time information into its route selection and guidance algorithms.
Vehicle Environmental Probe Support	This equipment package includes the vehicle sensors and communications systems that sense and send road conditions and surface weather information as the vehicle travels. The same vehicle equipment that improves stability and provides driver information in adverse conditions is a potential source for this information.	Vehicle Environmental Probe Support	This equipment package includes the vehicle sensors and communications systems that sense and send road conditions and surface weather information as the vehicle travels. The same vehicle equipment that improves stability and provides driver information in adverse conditions is a potential source for this information.
Vehicle Intersection Control	This equipment package detects potentially hazardous situations in an intersection and takes control of the vehicle to avoid a potential collision. This equipment package includes the on-board sensors that detect potential hazards, the actuator systems that provide automated control of the vehicle, and equipment that communicates with the infrastructure to identify intersection safety issues identified by field equipment at the intersection.	Vehicle Intersection Control	This equipment package detects potentially hazardous situations in an intersection and takes control of the vehicle to avoid a potential collision. This equipment package includes the on-board sensors that detect potential hazards, the actuator systems that provide automated control of the vehicle, and equipment that communicates with the infrastructure to identify intersection safety issues identified by field equipment at the intersection.
Vehicle Intersection Safety Warning	This equipment package detects and notifies the driver of potentially hazardous situations in an intersection. The equipment package monitors intersection status and vehicle speed on the approach to the intersection and warns the driver if necessary. It shares vehicle status with field equipment at the intersection and uses intersection status provided by this field equipment to warn the driver of impending violations or potential conflicts with other vehicles approaching the intersection. This equipment package includes the on-board sensors that detect potential hazards, equipment that communicates with the infrastructure to identify safety issues identified by field equipment at the intersection, and equipment that provides visual and/or audible warnings to the driver.	Vehicle Intersection Safety Warning	This equipment package detects and notifies the driver of potentially hazardous situations in an intersection. The equipment package monitors intersection status and vehicle speed on the approach to the intersection and warns the driver if necessary. It shares vehicle status with field equipment at the intersection and uses intersection status provided by this field equipment to warn the driver of impending violations or potential conflicts with other vehicles approaching the intersection. This equipment package includes the on-board sensors that detect potential hazards, equipment that communicates with the infrastructure to identify safety issues identified by field equipment at the intersection, and equipment that provides visual and/or audible warnings to the driver.
Vehicle Lateral Control	This equipment package provides lateral control of a vehicle to allow "hands off" driving, automating the steering control function. It includes on-board systems that detect lanes and obstacles or vehicles to the sides of the vehicle. This sensor information is processed on board the vehicle, and appropriate steering control actions are maintained using steering actuators.	Vehicle Lateral Control	This equipment package provides lateral control of a vehicle to allow "hands off" driving, automating the steering control function. It includes on-board systems that detect lanes and obstacles or vehicles to the sides of the vehicle. This sensor information is processed on board the vehicle, and appropriate steering control actions are maintained using steering actuators.
Vehicle Lateral Warning System	This equipment package monitors areas to the sides of a vehicle and provides warnings to a driver so the driver can take action to recover and maintain safe control of the vehicle. It includes on-board sensors that detect lanes and obstacles or vehicles to the sides of the vehicle and the driver information system that provides the warning.	Vehicle Lateral Warning System	This equipment package monitors areas to the sides of a vehicle and provides warnings to a driver so the driver can take action to recover and maintain safe control of the vehicle. It includes on-board sensors that detect lanes and obstacles or vehicles to the sides of the vehicle and the driver information system that provides the warning.
Vehicle Location Determination	This equipment package receives current location of the vehicle from the Location Data Source terminator and provides this information to other equipment packages that use the location information to provide various ITS services.	Vehicle Location Determination	This equipment package receives current location of the vehicle from the Location Data Source terminator and provides this information to other equipment packages that use the location information to provide various ITS services.

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Vehicle Longitudinal Control	This equipment package provides longitudinal control of a vehicle to allow "feet off" driving, automating the function of speed control, acceleration, and braking to maintain safe following distances. It includes on-board systems that detect obstacles or vehicles in the longitudinal path of the vehicle. This sensor information is processed on board the vehicle, and appropriate control actions (acceleration, braking, or maintaining speed) are initiated using accelerator and/or brake actuators.	Vehicle Longitudinal Control	This equipment package provides longitudinal control of a vehicle to allow "feet off" driving, automating the function of speed control, acceleration, and braking to maintain safe following distances. It includes on-board systems that detect obstacles or vehicles in the longitudinal path of the vehicle. This sensor information is processed on board the vehicle, and appropriate control actions (acceleration, braking, or maintaining speed) are initiated using accelerator and/or brake actuators.
Vehicle Longitudinal Warning System	This equipment package monitors areas in front of and behind the vehicle and provides warnings to the driver so the driver can take action to recover and maintain safe control of the vehicle. It includes on-board sensors that detect objects in front of or behind the vehicle and the driver information system that provides the warning.	Vehicle Longitudinal Warning System	This equipment package monitors areas in front of and behind the vehicle and provides warnings to the driver so the driver can take action to recover and maintain safe control of the vehicle. It includes on-board sensors that detect objects in front of or behind the vehicle and the driver information system that provides the warning.
Vehicle Mayday I/F	This equipment package provides the capability for drivers or collision detection sensors to report an emergency and summon assistance. This equipment package includes the on-board collision detection sensors, a mechanism for the driver to summon assistance, and two-way communications with a service provider.	Vehicle Mayday I/F	This equipment package provides the capability for drivers or collision detection sensors to report an emergency and summon assistance. This equipment package includes the on-board collision detection sensors, a mechanism for the driver to summon assistance, and two-way communications with a service provider.
Vehicle On-board Diagnostics System	This equipment package monitors engine-related components, including the emissions control system, to make sure they are operating properly. Detected problems are reported to the driver and additional diagnostics data is stored for the service technician. Vehicle diagnostics data is made available via short range communications to support vehicle performance monitoring, service, and repair.	Vehicle On-board Diagnostics System	This equipment package monitors engine-related components, including the emissions control system, to make sure they are operating properly. Detected problems are reported to the driver and additional diagnostics data is stored for the service technician. Vehicle diagnostics data is made available via short range communications to support vehicle performance monitoring, service, and repair.
Vehicle Pre-Crash Safety Systems	This equipment package monitors the vehicle's local environment, determines collision probability, and deploys a pre-crash safety system when a crash is imminent. It includes on-board communications equipment and sensors to determine the proximity and closing rates of neighboring vehicles or other roadway obstacles. These detection systems are supplemented by additional sensors that monitor existing weather and roadway conditions and roadway geometry. The equipment package assimilates this information and determines the probability of a collision with the other vehicle or obstacle. If the collision probability is high, it deploys a pre-crash safety system either to avoid the accident or to reduce the accident severity.	Vehicle Pre-Crash Safety Systems	This equipment package monitors the vehicle's local environment, determines collision probability, and deploys a pre-crash safety system when a crash is imminent. It includes on-board communications equipment and sensors to determine the proximity and closing rates of neighboring vehicles or other roadway obstacles. These detection systems are supplemented by additional sensors that monitor existing weather and roadway conditions and roadway geometry. The equipment package assimilates this information and determines the probability of a collision with the other vehicle or obstacle. If the collision probability is high, it deploys a pre-crash safety system either to avoid the accident or to reduce the accident severity.
Vehicle Safety Monitoring System	This equipment package monitors critical components of the vehicle and warns the driver of potential dangers. These capabilities are provided by on-board sensors to monitor the vehicle condition and performance, including steering, braking, acceleration, emissions, fuel economy, engine performance, etc. Problems with any of these systems are identified and reported to the driver. Warnings are provided in the event of a serious condition (e.g., likely failure or damage).	Vehicle Safety Monitoring System	This equipment package monitors critical components of the vehicle and warns the driver of potential dangers. These capabilities are provided by on-board sensors to monitor the vehicle condition and performance, including steering, braking, acceleration, emissions, fuel economy, engine performance, etc. Problems with any of these systems are identified and reported to the driver. Warnings are provided in the event of a serious condition (e.g., likely failure or damage).
Vehicle Secure Area Access System	This equipment package provides access to secure areas such as shipping yards, warehouses, airports, transit-only ramps, parking gates and other areas. It accepts inputs from the vehicle driver that include the necessary identity information and uses this information to generate the request to activate a barrier to gain access to the area.	Vehicle Secure Area Access System	This equipment package provides access to secure areas such as shipping yards, warehouses, airports, transit-only ramps, parking gates and other areas. It accepts inputs from the vehicle driver that include the necessary identity information and uses this information to generate the request to activate a barrier to gain access to the area.
Vehicle Short Range Traveler Information Reception	This equipment package receives advisories, vehicle signage data, and other driver information via short range communications and presents this information to the driver using in-vehicle equipment. Information presented may include fixed sign information, traffic control device states (e.g., traffic signal states), advisory and detour information, warnings of adverse road and weather conditions, travel times, and other driver information.	Vehicle Short Range Traveler Traveller Information Reception	This equipment package receives advisories, vehicle signage data, and other driver information via short range communications and presents this information to the driver using in-vehicle equipment. Information presented may include fixed sign information, traffic control device states (e.g., traffic signal states), advisory and detour information, warnings of adverse road and weather conditions, travel times, and other driver information.
Vehicle Toll/Parking Interface	This equipment package includes the on-board systems that pay for tolls and parking electronically. It includes in-vehicle equipment that communicates with the toll/parking plaza (e.g., a tag) and an optional interface to a traveler card to allow use of a common payment medium for all transportation services.	Vehicle Toll/Parking Interface	This equipment package includes the on-board systems that pay for tolls and parking electronically. It includes in-vehicle equipment that communicates with the toll/parking plaza (e.g., a tag) and an optional interface to a traveler traveller card to allow use of a common payment medium for all transportation services.
Vehicle Traffic Probe Support	This equipment package includes capabilities for the probe vehicle to identify its location, measure traffic conditions such as link travel time and speed, and transmit these data to a center or roadside equipment.	Vehicle Traffic Probe Support	This equipment package includes capabilities for the probe vehicle to identify its location, measure traffic conditions such as link travel time and speed, and transmit these data to a center centre or roadside equipment.
Vehicle Trip Planning and Route Guidance	This equipment package includes the in-vehicle system that coordinates with a traveler information center to provide a personalized trip plan to the driver. The trip plan is calculated by the Information Service Provider based on preferences and constraints supplied by the driver and provided to the driver for confirmation. Reservations and advanced payment may also be processed by this equipment package to confirm the trip plan. Coordination with the Information Service Provider may continue during the trip so that the route plan can be modified to account for new information. Many equipment configurations are possible including in-vehicle systems that provide a basic trip plan to the driver as well as more sophisticated systems that can provide turn by turn guidance to the driver along the route.	Vehicle Trip Planning and Route Guidance	This equipment package includes the in-vehicle system that coordinates with a traveler traveller information center centre to provide a personalized trip plan to the driver. The trip plan is calculated by the Information Service Provider based on preferences and constraints supplied by the driver and provided to the driver for confirmation. Reservations and advanced payment may also be processed by this equipment package to confirm the trip plan. Coordination with the Information Service Provider may continue during the trip so that the route plan can be modified to account for new information. Many equipment configurations are possible including in-vehicle systems that provide a basic trip plan to the driver as well as more sophisticated systems that can provide turn by turn guidance to the driver along the route.

Appendix C4 – Canada Version 2 (C_V2) vs. U.S. Version 6 (US_V6) Text Comparison – Functional Objects

US_V6 Name	US_V6 Description	C_V2 Name	C_V2 Description
Vehicle Warning System	This equipment package receives location information from nearby vehicles and uses the received information to determine if there is a possibility of collision and warn the driver. This equipment package also provides information to surrounding vehicles about its own location, speed, and other information to allow other similarly equipped vehicles to warn their drivers if necessary. The same equipment also receives alerts from responding emergency vehicles in the vicinity so the driver can be warned of the approaching emergency vehicle, increasing the safety of the driver and the emergency responder. It includes on-board equipment (OBE) that sends and receives the messages and determines if there is a need to warn the driver, and the driver information system that provides the warnings.	Vehicle Warning System	This equipment package receives location information from nearby vehicles and uses the received information to determine if there is a possibility of collision and warn the driver. This equipment package also provides information to surrounding vehicles about its own location, speed, and other information to allow other similarly equipped vehicles to warn their drivers if necessary. The same equipment also receives alerts from responding emergency vehicles in the vicinity so the driver can be warned of the approaching emergency vehicle, increasing the safety of the driver and the emergency responder. It includes on-board equipment (OBE) that sends and receives the messages and determines if there is a need to warn the driver, and the driver information system that provides the warnings.
Virtual Data Warehouse Services	This equipment package provides capabilities to access "in-place" data from geographically dispersed archives and coordinate information exchange with a local data warehouse. While many of the functions performed by this equipment package are similar to the functions inherent in other archived data management subsystem equipment packages (e.g. data management, fusion, analysis) this equipment package also provides the specialized publishing, directory services, and transaction management functions associated with coordinating remote archives. In addition, this equipment package performs functions on an as-needed basis, thereby negating the need to maintain the comprehensive set of data from the remote archives in the local data warehouse.	Virtual Data Warehouse Services	This equipment package provides capabilities to access "in-place" data from geographically dispersed archives and coordinate information exchange with a local data warehouse. While many of the functions performed by this equipment package are similar to the functions inherent in other archived data management subsystem equipment packages (e.g. data management, fusion, analysis) this equipment package also provides the specialized publishing, directory services, and transaction management functions associated with coordinating remote archives. In addition, this equipment package performs functions on an as-needed basis, thereby negating the need to maintain the comprehensive set of data from the remote archives in the local data warehouse.