Standards Gap Analysis for Cooperative Intelligent Transportation Systems (C-ITS)

Results: Service Package Perspective: Japan

Document HTG7-3-3-JP
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Standards Harmonisation Working Group
Harmonisation Task Group 7

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1. Introduction

1.1 Background

Advancements in transportation technologies are rapidly transforming the world's strategies for increasing safety; gaining operational, mobility, and cost efficiencies; opening access to underserved communities; and reducing environmental impacts from transportation. Using new forms of short-range communications, vehicles and devices are now capable of broadcasting or receiving data that allow them to sense the movements and status of other surrounding devices. These cooperative exchanges create a three hundred sixty degree awareness that, when further fused with other open data, can enable drivers and other users of the transportation system to receive alerts and warnings regarding the formation of threats and hazards. The alerts and warnings created through these communication technologies provide the opportunity to prevent some crashes, thereby reducing fatalities, injuries, and property damage. The cooperative exchange of data in this manner can also enhance the benefits of automation.

Access to new data sets can also transform network operations and minimize the capital investment costs of infrastructure owners and operators. Broadcast data sets from users within a highly mobile environment can complement or potentially supersede the need for significant roadside equipment on major roads. These new data can also form a more complete representation of conditions on the arterial network, including road weather impacts, effects of traffic signal timing, support for incident and emergency responders, or changes in traveller decisions, among other conditions.

Standards for interfaces in the public interest can play a key role in delivering these benefits to communities that implement cooperative-ITS technologies. Technical standards are developed to address coordination problems and overcome technical barriers that exist when different organizations need to work together while preserving their institutional and proprietary processes. The International Organization for Standards (ISO) defines a standard as, "… a document, established by a consensus of subject matter experts and approved by a recognized body that provides guidance on the design, use or performance of materials, products, processes, services, systems or persons." The end documents, which frequently represent the interests of the experts and parties that gather to develop them, are vetted by experts. Recognized benefits include improved safety, mobility, and sustainability for the travelling public and enhanced interoperability within an open market environment.[1]

[1] See definitions at: the European Committee for Standardization (CEN): https://www.cen.eu/work/ENdev/whatisEN/Pages/default.aspx; the International Organization for Standards (ISO): https://www.iso.org/sites/ConsumersStandards/1_standards.html; Wikipedia: https://en.wikipedia.org/wiki/Technical_standard; the National Institute of Standards and Technology (NIST): https://www.nist.gov/services-resources/standards-and-measurements.

1.2 History

In 2011, the United States (US) Department of Transportation (USDOT) and the European Commission (EC) approved a **Harmonisation Action Plan** to guide EC-US standards development via Harmonisation Task Groups (HTGs). The plan recognises that successful, interoperable, nationwide or regional, cooperative technology implementations are critically dependent upon consistent application of complete, technically sound standards and policies for critical functions, interfaces, and ***information flows***[2]. This worldwide need applies to the common services of a cooperative systems environment as well as to global markets for vehicles, devices, and applications. While the envisioned end state appears very similar in many parts of the world, past analyses have been regional and independent in nature and have proceeded with varying levels of coordination. The HTGs allow participating countries to collaborate on technical ITS issues that are of common interest and thus leverage critical expertise and resources while potentially realizing more compatible worldwide solutions.

Transport Certification Australia (TCA) joined the HTG initiatives in January 2014 by bringing security expertise and co-leadership to the sixth HTG (HTG6).[3]

1.3 HTG7

With the emergence in 2015 of plans in the US, Europe, and Australia to develop pilot ***Cooperative Intelligent Transportation Systems*** (***C-ITS***)[4] projects, a new HTG was established to identify how existing standards could support new C-ITS installations (i.e., "standards solutions for C-ITS") and, in doing so, identify the issues in standards that could pose risks for deployers. This seventh HTG (HTG7) began in late 2015 as a joint effort between the EC, the USDOT, and TCA, with the Japan Ministry of Land, Infrastructure, Transport and Tourism (MLIT) joining in 2017.

Specifically, the objective of HTG7 was to identify standards that comprehensively support large-scale C-ITS deployments. HTG7 expects that fulfilling this objective will allow:

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[2] Terms that are in ***bold italics*** in this report are defined in a companion report, the **HARTS Reference Compendium (HTG7-5)**, which defines all of the terms used throughout this report set. Terms defined in the reference compendium are bold faced and italicised within each HARTS report upon their first use.

[3] Results of HTG6 are located here: https://ec.europa.eu/digital-single-market/news/harmonized-security-policies-cooperative-intelligent-transport-systems-create-international.

[4] C-ITS is a subset of ITS that requires the mutual, secure exchange of data between *independent* trusted entities (i.e., parties that have no contractual relationship). In other words, while traditional ITS typically deals with exchanges among system components owned and managed by a single or limited number of entities; these new ITS services expand this scope to include system components (e.g., vehicles) that may be owned and managed by any number of different entities. The scope of the HTG7 analysis included the C-ITS interfaces (i.e., exchanges between parties with no contractual relationship but with security and authentication as the basis for trust) as well as the more traditional "back-office" flows (between contracted parties) that enable the provision of the C-ITS services. This architecture presents a level of connectivity suggesting an "Internet of Things" for transportation.

1. **Governments, standards organisations, and other interested stakeholders** to track ***issues*** regarding those interfaces and information flows that are of significant public interest within the C-ITS ***architecture***, facilitating engagement with experts to address them;
2. **ITS deployment teams, device manufacturers, and application developers** to identify candidate standards-based ***solutions*** that are available to them for planning, understand the issues associated with those solutions, and mitigate the risks associated with those issues in their deployments. Future ITS deployment teams around the world will have a clearer understanding about which system functions and interfaces are critical for ***interoperability*** and where standards are defined (or not yet defined) to support interoperability.

1.4 Globally Harmonised Reference Architecture

To establish a foundation for analysing standards, the international HTG7 team first developed the **Harmonised Architecture Reference for Technical Standards (HARTS).** HARTS facilitates the understanding of the applicability of standards (ITS standards and other Information and Communications Technology (ICT) standards) for the successful implementation of ***C-ITS services***[5]. HARTS provided the framework for the HTG7 team to identify key interfaces that need to be standardised in the public interest and served as the basis for performing the ***gap*** and ***overlap*** analysis of C-ITS standards for those interfaces.

HARTS is an internationally harmonised reference architecture based on:

- **National ITS Architecture Framework (NIAF) from Australia**
- **EU's Framework Architecture (FRAME) from Europe**
- **Connected Vehicle Reference Implementation Architecture (CVRIA) from the US**
- **C-ITS architecture constructs from Japan**

The body of work produced by HTG7 includes key resources for industry, such as HARTS and the accompanying HTG7 reports. These tools not only provide a starting point for the ITS community to address the technical and interoperability challenges that face wide-scale ITS deployment; but also provide tactical guidance on standards, solutions, and risks for current or near-term project teams planning and implementing ITS systems. Although the reports are based on a globally harmonised ***reference architecture***, they formally recognise and accommodate regional and local approaches to ITS services, solutions, and standards.

1.5 Format of HTG7 Reports

The results summarized in this Executive Summary are presented in greater detail in the HTG7 series of reports:

- **Executive Overview (HTG7-1)** - A high-level summary of the approach, process and the key results of HTG7.

[5] For the purpose of this report, the term "C-ITS service" is intended to include all ITS services encompassed by the HARTS service packages; at the time of publication 34 are available on the HARTS website (http://htg7.org).

- **Analysis Methodology (HTG7-2)** - Presents the HTG7 methodology used to develop HARTS, perform the gap analysis, and develop proposed resolutions.
- **Issues and Proposed Resolutions (HTG7-3, this document)** - Summarises the issues identified through HTG7 analysis and proposes actions to resolve the issues. It introduces a series of more detailed reports, detailed below, each of which identifies the same set of proposed resolutions but adopts a presentation format and includes details relevant to a different perspective.
    - **Results: Solution Perspective for Deployers (HTG7-3-1-AU, HTG7-3-1-EU, HTG7-3-1-JP, HTG7-3-1-US)** - Addresses development or implementation teams in their planning and procurement processes. This detailed report lists each solution along with its associated issues and proposed resolutions and is divided into four regional sub-reports, one for each participating region. (The region is reflected by the appended 2-letter region code[6]).
    - **Results: Resolution Perspective for Standards Developers (HTG7-3-2)** - Presents each proposed resolution along with its associated issues and the data exchanges affected by these issues. This detailed report can assist standards development communities and governments in their planning and work processes.
    - **Results: Service Package Perspective (HTG7-3-3-AU, HTG7-3-3-EU, HTG7-3-3-JP, HTG7-3-3-US)** - Offers road operators the opportunity to evaluate the "readiness" of ***service packages***. This detailed report lists each service package, the data exchanges contained within the service package, and the issues associated with each solution for each data exchange. In this respect, this report helps deployers understand the levels of risk due to the standards gaps. The report is divided into 4 regional reports, one for each participating region. (The region is reflected by the appended the 2-letter region code[6]).
- **HARTS Website Overview (HTG7-4)** - Provides an overview of the HARTS public website, available at http://htg7.org. It describes each aspect of the website and provides instructions on how to submit comments about the information on the website.
- **HARTS Reference Compendium (HTG7-5)** - Provides reference material including:
    - A glossary of terms and associated definitions
    - Acronyms and associated meanings
    - Graphic symbols and associated meanings
    - Explanations of key terms and their inter-relationships

[6] As defined by ISO 3166-1:2013 *Codes for the representation of names of countries and their subdivisions – Part 1: Country codes*

1.6 Conventions

While the HTG7 Report set was developed using United Kingdom (UK) English, the HARTS (toolset and website) was developed using US English. Whenever an extract from HARTS is presented within the HTG7 Report set, it will retain its US English spelling.

As noted in footnote 2 on page 2, this report is supplemented by the HARTS Reference Compendium (HTG7-5), which defines all of the terms used throughout this report set. Terms defined in the reference compendium are bold faced and italicised within each HARTS report upon their first use.

1.7 Purpose of this Document

This document, **Results: Service Package Perspective: Japan** (HTG7-3-3-JP), is one of nine detailed reports designed to report the issues found and their proposed resolutions, each from a unique perspective. They are adjuncts to the Summary of Issues and Proposed Resolutions (HTG7-3) report, which summarises the results of the HTG7 analysis, summarises the key issues identified during the analysis, and provides a comprehensive set of proposed and prioritised resolutions. The nine detailed reports offer three different technical perspectives, with two of those perspectives further broken out into the four regions encompassed by the HTG7 analysis. The specific detailed reports are as follows:

- **Solution Perspective:** Assists implementation teams in understanding the issues surrounding each solution contained within the HARTS analysis; there is one detailed report for each of the four regions covered by the HARTS analysis. The name of each of the four reports will have a two-letter identifier (-AU, -EU, -JP or -US) at the end of the report identifier and the electronic filename.
- **Resolution Perspective:** Provides an overarching view of the work that still needs to be completed to provide a fully interoperable C-ITS environment and is intended primarily for standards development organisations and governmental entities.
- **Service Package Perspective:** For entities that are deploying C-ITS, such as governmental agencies, product vendors and others that are interesting in the complete end-to-end implementation of an ITS service package; there is one detailed report for each of the four regions covered by the HARTS analysis. The identifier of each of the four reports will have a two-letter identifier (-AU, -EU, -JP or -US) at the end of the report title and the electronic filename.

Please note that each of these detailed reports is extremely large and therefore not intended for printing.

2. Report Perspective

There is a separate regional report within this detailed report collection for each of the participating regions: Australia, the European Union, Japan and the United States. In accordance with guidance in ISO 42010-2011, "*Systems and software engineering — Architecture description*", this detailed report is designed to address a specific set of concerns, or perspective, of a specific group of stakeholders.

This detailed report provides the service package perspective for Japan. It provides a table of the HARTS analysis results structured to provide insight for road operators, regional planners, or other decision makers within Japan, to assess the suitability of service packages for deployment in their jurisdiction.

The results in this detailed report are therefore organised by service package; accompanied by a list of the ***information triples*** (***source***, ***destination*** and information flow) within the service package. Under each triple contained within the service package is a list of available solution/issue pairs for that triple. This is summarised in Figure 1.

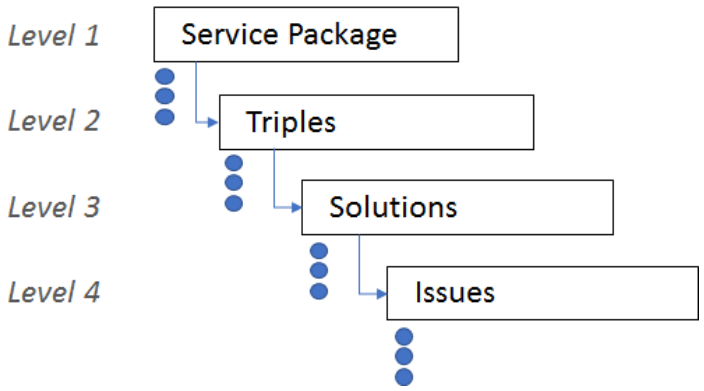

Figure 1: Service Package Perspective Overview

3. Report Structure

As show in Figure 1 above, there are multiple levels within the detailed report. Each level will consist of one, or possibly two header rows, followed by one or more content rows. Given the multi-level detailed report structure, higher-level sorting fields are typically displayed in header rows (e.g., at the start of the detailed report and when values change) while the lowest-level sorting fields may only appear in content rows. When the header field value is changed, the page header for each subsequent page is changed accordingly. Figure 2 below illustrates the detailed report structure, and each field included in the detailed report is subsequently defined in Table 1.

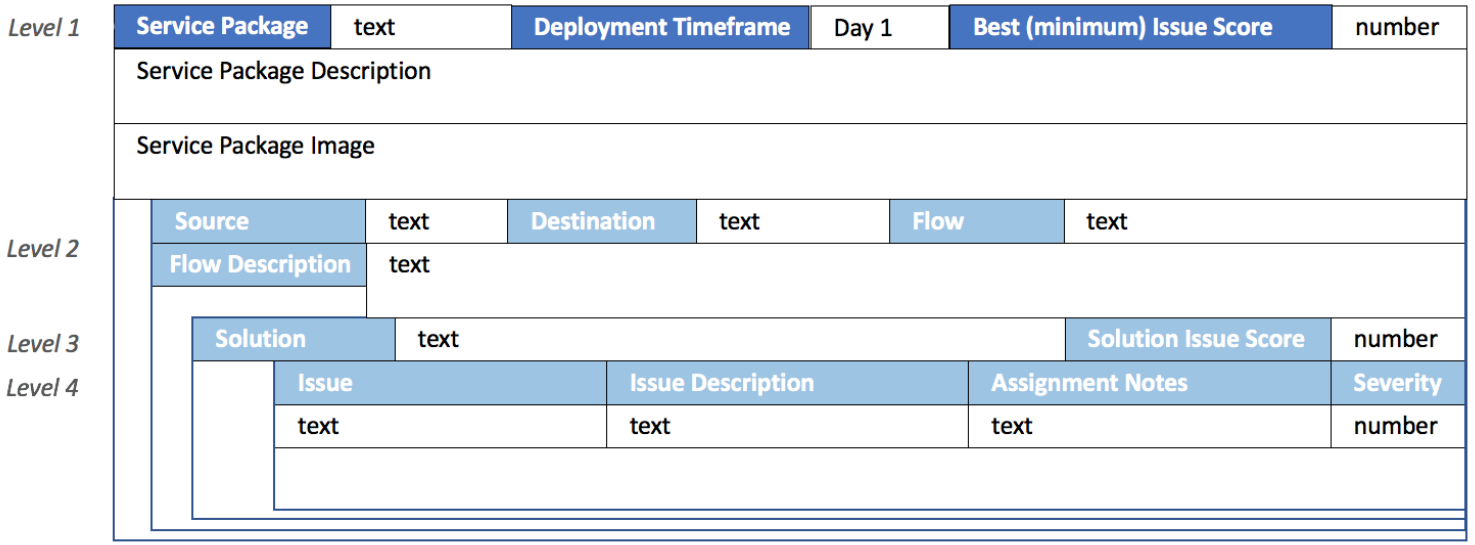

Figure 2: Service Package Report Structure

The following table contains the field name, its description and its value range for each of the detailed report fields in Chapter 4. They are listed in the table below according to the order in which they appear in the detailed report in Chapter 4. Additionally, the table also shows the sorting criteria used for the detailed report, including the order of sorting fields, the sorting method used, and the sort direction.

Table 1: Service Package Perspective Report Field Descriptions

Report	Field Information			Sort Criteria		
Level	Title	Description	Value Range	Order	Measure	Direction
1	**Service Package**	The name of the service package. A complete list of HARTS Service packages can be found at the HTG7 Website.	ASCII[7]	2	Alphabetic	↓
	Deployment Timeframe	This reflects the stated or anticipated timeline for real-world deployments of the service package, which will factor into the urgency of addressing the associated proposed resolutions.	Ordered List (Support, Day-1, Day-1.5, Other)	1	List Order	↓
	Best (minimum) Issue Score	This was calculated using the following: 1. Identifying the net gap severity (the sum of individual gaps) for each triple solution within the service package. 2. For each triple in the service package, identify the triple solution with the minimum net gap severity value. 3. Sum the identified minimum net gap severity values across all the triples.	Non-negative integer	–	–	–
	Service Package Description	A high-level description of the service package. NOTE: Only the description text is displayed; the title of this field is not shown.	ASCII	–	–	–
	Service Package Diagram	The diagram that depicts all of the information triples used by the service package. NOTE: Only the image is displayed; the title of this field is not shown.	Graphic	–	–	–

[7] ASCII (American Standard Code for Information Exchange)

Report	Field Information			Sort Criteria		
Level	Title	Description	Value Range	Order	Measure	Direction
2	**Source**	The HARTS ***subsystem*** that is the source of the information in the flow. The combination of the source, destination and the information flow constitutes the information triple.	ASCII	3	Alphabetic	↓
	Destination	The HARTS subsystem that is the destination of the information in the flow. The combination of the source, destination and the information flow constitutes the information triple.	ASCII	4	Alphabetic	↓
	Flow	Summary name for the information that is exchanged between subsystems in the ***physical view*** of HARTS. These Information flows and their communication requirements define the interfaces which formed the basis for the standards analysis conducted by HTG7. The combination of the source, destination and the information flow constitutes the information triple.	ASCII	5	Alphabetic	↓
	Flow Description	A description of the information flow.	ASCII	–	–	–
3	**Solution**	The name of the solution expressed as a hyphenated concatenation of the HARTS data profile and the HARTS communication profile that collectively define the solution.	ASCII	7	Alphabetic	↓

Report	Field Information			Sort Criteria		
Level	Title	Description	Value Range	Order	Measure	Direction
	Solution Issue Score	The sum of the severity rating values of all issue instances associated with the solution. The severity rating value for each severity level is assigned below: 1. Low = 1 2. Medium = 3 3. High = 8 4. Ultra = 32	Non-negative integer	6	Numeric	↓
4	**Issue**	The name of the issue, which will correspond to one of the 43 defined issues.	ASCII; See HTG7-5 for a complete list of issues.	9	Alphabetic	↓
	Issue Description	A summary description of the issue.	ASCII	–	–	–
	Assignment Notes	Notes relevant to this specific instance of the issue	ASCII	–	–	–
	Severity	An indication of how severe the issue is deemed to be. If the severity of the issue needs to be decided when assigning the issue, multiple issues can be created with slightly different names and definitions. For example, “Data may not be fully defined (low)” and “Data not fully defined (medium)”.	Ordered List (Ultra, High, Medium, Low)	8	List Order	↓

4. Report Content

The table of results is shown below.

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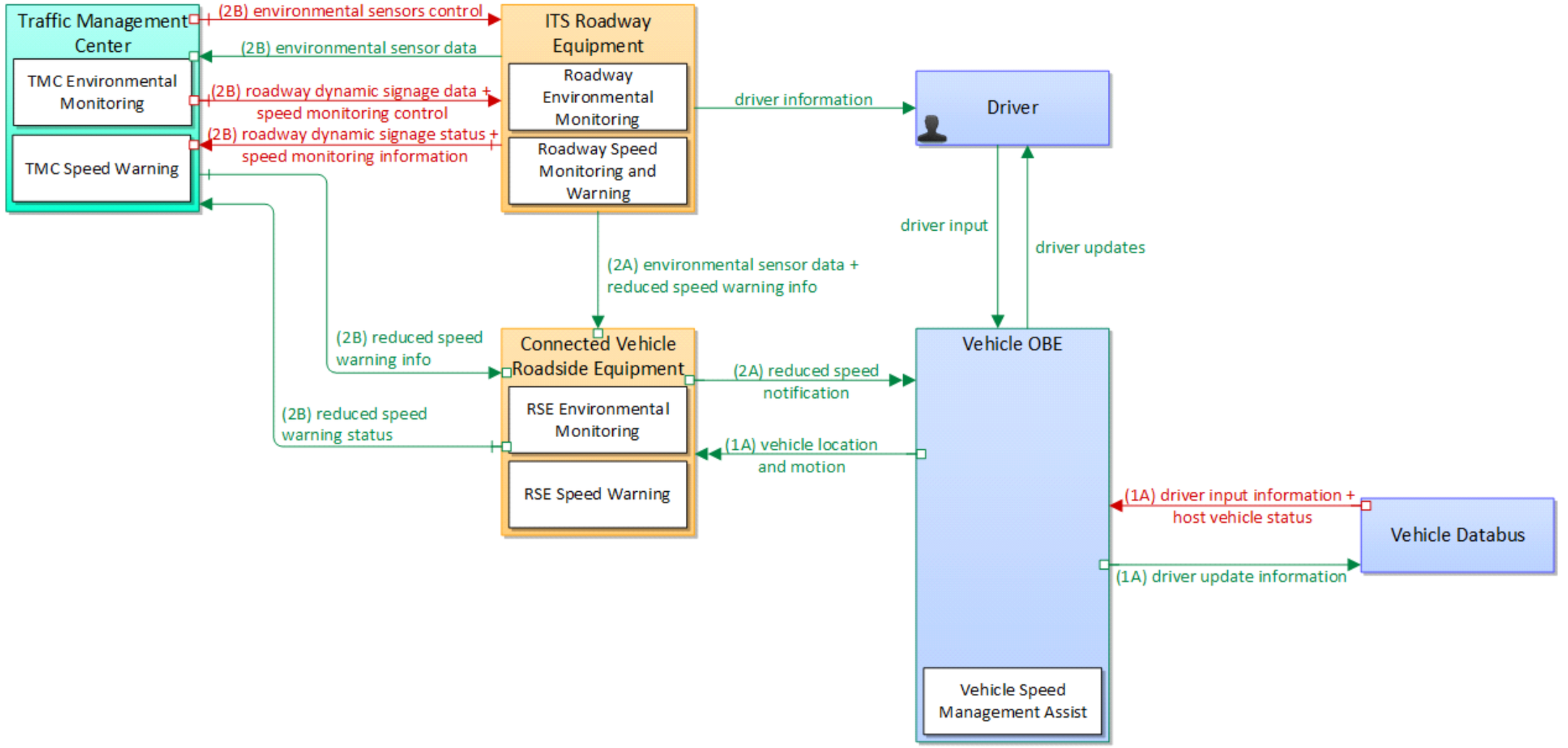
HTG7-3-3: Service Package Perspective
Japan

Wednesday, December 19, 2018
1:02:29 PM

Service Package:	Curve Speed Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

The curve speed warning application allows connected vehicles to receive information that it is approaching a curve along with the recommended speed for the curve. This capability allows the vehicle to provide a warning to the driver regarding the curve and its recommended speed. In addition, the vehicle can perform additional warning actions if the actual speed through the curve exceeds the recommended speed.



Curve Speed Warning			
7	Physical	Sep 27, 2017	NAT

Service Package:	Curve Speed Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	reduced speed warning status
Flow Description:	Speed warning application status reported by the RSE. This includes current operational state and status of the RSE and a record of measured vehicle speeds and notifications, alerts, and warnings issued.				

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	reduced speed notification
Flow Description:	Reduced speed zone information provided to passing vehicles. This flow provides the reduced speed limit, the location and extent of the reduced speed zone, and associated warning information.				

Solution	JP: F-V Short Range Wireless Data(JP) - F-V Short Range Wireless Downlink Comm (JP)	Solution Issue Score:	15

Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Service Package:	Curve Speed Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	environmental sensor data
Flow Description:	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 en				

Source:	ITS Roadway Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	reduced speed warning info
Flow Description:	Roadway configuration data, current speed limits including time of day, week, or season speed limits as necessary, and warning parameters and thresholds. This flow also supports remote control of the application so the application can be taken offline, r				

Service Package:	Curve Speed Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	environmental sensor data
Flow Description:	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 en				

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	roadway dynamic signage status
Flow Description:	Current operating status of dynamic message signs.				

Service Package:	Curve Speed Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	speed monitoring information
Flow Description:	System status including current operational state and logged information including measured speeds, warning messages displayed, and violation records.				

Source:	Traffic Management Center	Destination:	Connected Vehicle Roadside Equipment	Flow:	reduced speed warning info
Flow Description:	Roadway configuration data, current speed limits including time of day, week, or season speed limits as necessary, and warning parameters and thresholds. This flow also supports remote control of the application so the application can be taken offline, r				

Service Package:	Curve Speed Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	environmental sensors control
Flow Description:	Data used to configure and control environmental sensors.				

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	roadway dynamic signage data
Flow Description:	Information used to initialize, configure, and control dynamic message signs. This flow can provide message content and delivery attributes, local message store maintenance requests, control mode commands, status queries, and all other commands and associ				

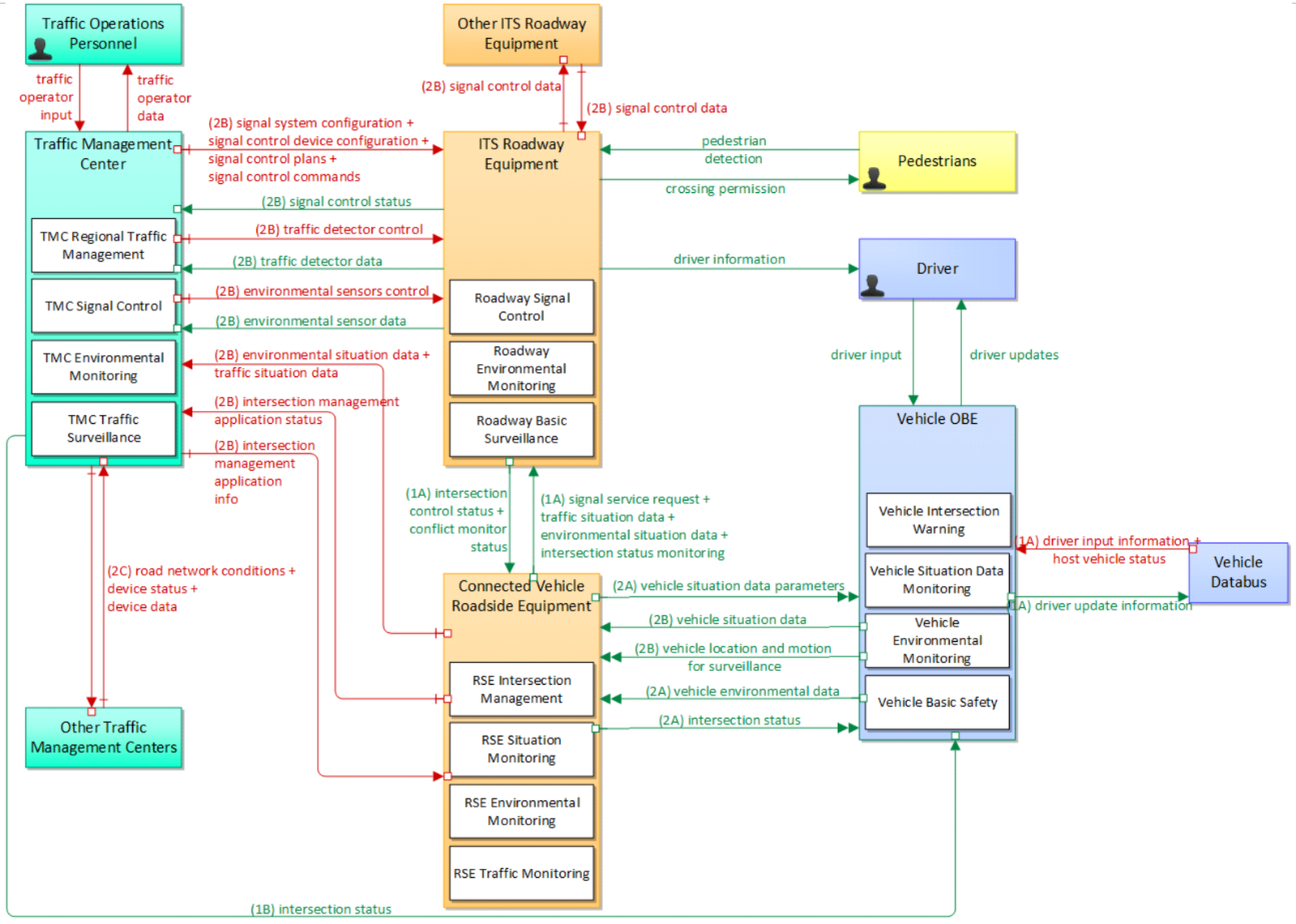
Service Package:	Curve Speed Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	speed monitoring control
Flow Description:	Information used to configure and control automated speed monitoring, speed warning, and speed enforcement systems.				

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle location and motion
Flow Description:	Data describing the vehicle's location in three dimensions, heading, speed, acceleration, braking status, and size.				

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

The Intelligent Traffic Signal System (ISIG) application uses both vehicle location and movement information from connected vehicles as well as infrastructure measurement of non-equipped vehicles to improve the operations of traffic signal control systems. The application utilizes the vehicle information to adjust signal timing for an intersection or group of intersections in order to improve traffic flow, including allowing platoon flow through the intersection. The application serves as an over-arching system optimization application, accommodating other mobility applications such as Transit Signal Priority, Freight Signal Priority, Emergency Vehicle Preemption, and Pedestrian Mobility to maximize overall arterial network performance. In addition, the application may consider additional inputs such as environmental situation information or the interface (i.e., traffic flow) between arterial signals and ramp meters.



Intelligent Traffic Signal System			
9	Physical	May 4, 2017	NAT

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	ITS Roadway Equipment	Flow:	environmental situation data
Flow Description:	Aggregated and filtered vehicle environmental data collected from vehicle safety and convenience systems including measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, anti-lock bra				

Source:	Connected Vehicle Roadside Equipment	Destination:	ITS Roadway Equipment	Flow:	intersection status monitoring
Flow Description:	Current signal phase and timing information for all lanes at a signalized intersection. This flow represents monitoring of communications by a receiver at the intersection to support monitoring for conflicts between actual signal states and RSE communica				

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	ITS Roadway Equipment	Flow:	signal service request
Flow Description:	A call for service or extension for a signal control phase that is issued by the RSE for connected vehicles approaching an intersection and/or pedestrians at a crosswalk. This flow identifies the desired phase and service time.				

Source:	Connected Vehicle Roadside Equipment	Destination:	ITS Roadway Equipment	Flow:	traffic situation data
Flow Description:	Current, aggregate traffic data collected from connected vehicles that can be used to supplement or replace information collected by roadside traffic detectors. It includes raw and/or processed reported vehicle speeds, counts, and other derived measures.				

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	environmental situation data
Flow Description:	Aggregated and filtered vehicle environmental data collected from vehicle safety and convenience systems including measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, anti-lock bra				

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	intersection management application status
Flow Description:	Infrastructure application status reported by the RSE. This includes current operational state and status of the RSE and a log of operations.				

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	traffic situation data
Flow Description:	Current, aggregate traffic data collected from connected vehicles that can be used to supplement or replace information collected by roadside traffic detectors. It includes raw and/or processed reported vehicle speeds, counts, and other derived measures.				

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	intersection status
Flow Description:	Current signal phase and timing information for all lanes at a signalized intersection. This flow identifies active lanes and lanes that are being stopped and specifies the length of time that the current state will persist for each lane. It also identi				

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	vehicle situation data parameters
Flow Description:	A request for vehicle situation data that includes parameters used to control the data that is reported and the flow of data reported by the vehicle. This flow identifies the type of data/snapshots that are requested and reporting parameters such as snap				

Source:	ITS Roadway Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	conflict monitor status
Flow Description:	A control flow that supports failsafe operation in the event that a conflict is detected that requires the RSE to enter a failsafe operating mode. Analogous to a traffic signal conflict monitor, this flow is issued when differences are detected between in				

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	intersection control status
Flow Description:	Status data provided by the traffic signal controller including phase information, alarm status, and priority/preempt status.				

Source:	ITS Roadway Equipment	Destination:	Other ITS Roadway Equipment	Flow:	signal control data
Flow Description:	Information used to configure local traffic signal controllers.				

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	environmental sensor data
Flow Description:	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 en				

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	signal control status
Flow Description:	Operational and status data of traffic signal control equipment including operating condition and current indications.				

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	traffic detector data
Flow Description:	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 opera				

Source:	Other ITS Roadway Equipment	Destination:	ITS Roadway Equipment	Flow:	signal control data
Flow Description:	Information used to configure local traffic signal controllers.				

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Other Traffic Management Centers	Destination:	Traffic Management Center	Flow:	device data
Flow Description:	Data from detectors, environmental sensor stations, and traffic control devices including device inventory information.				

Source:	Other Traffic Management Centers	Destination:	Traffic Management Center	Flow:	device status
Flow Description:	Status information from devices				

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Other Traffic Management Centers	Destination:	Traffic Management Center	Flow:	road network conditions
Flow Description:	Current and forecasted traffic information, road and weather conditions, and other road network status. Either raw data, processed data, or some combination of both may be provided by this flow. Information on diversions and alternate routes, closures,				

Source:	Traffic Management Center	Destination:	Connected Vehicle Roadside Equipment	Flow:	intersection management application info
Flow Description:	Intersection and device configuration data and warning parameters and thresholds. This flow also supports remote control of the application so the application can be taken offline, reset, or restarted.				

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	environmental sensors control
Flow Description:	Data used to configure and control environmental sensors.				

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	signal control commands
Flow Description:	Control of traffic signal controllers or field masters including clock synchronization.				

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	signal control device configuration
Flow Description:	Data used to configure traffic signal control equipment including local controllers and system masters.				

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	signal control plans
Flow Description:	Traffic signal timing parameters including minimum green time and interval durations for basic operation and cycle length, splits, offset, phase sequence, etc. for coordinated systems.				

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	signal system configuration
Flow Description:	Data used to configure traffic signal systems including configuring control sections and mode of operation (time based or traffic responsive).				

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	traffic detector control
Flow Description:	Information used to configure and control traffic sensor systems.				

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	Other Traffic Management Centers	Flow:	device data
Flow Description:	Data from detectors, environmental sensor stations, and traffic control devices including device inventory information.				

Source:	Traffic Management Center	Destination:	Other Traffic Management Centers	Flow:	device status
Flow Description:	Status information from devices				

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	Other Traffic Management Centers	Flow:	road network conditions
Flow Description:	Current and forecasted traffic information, road and weather conditions, and other road network status. Either raw data, processed data, or some combination of both may be provided by this flow. Information on diversions and alternate routes, closures,				

Source:	Traffic Management Center	Destination:	Vehicle OBE	Flow:	intersection status
Flow Description:	Current signal phase and timing information for all lanes at a signalized intersection. This flow identifies active lanes and lanes that are being stopped and specifies the length of time that the current state will persist for each lane. It also identi				

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle environmental data
Flow Description:	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 brak				

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle location and motion for surveillance
Flow Description:	Data describing the vehicle's location in three dimensions, heading, speed, acceleration, braking status, and size. This flow represents monitoring of basic safety data ('vehicle location and motion') broadcast by passing connected vehicles for use in ve				

Service Package:	Intelligent Traffic Signal System	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle situation data

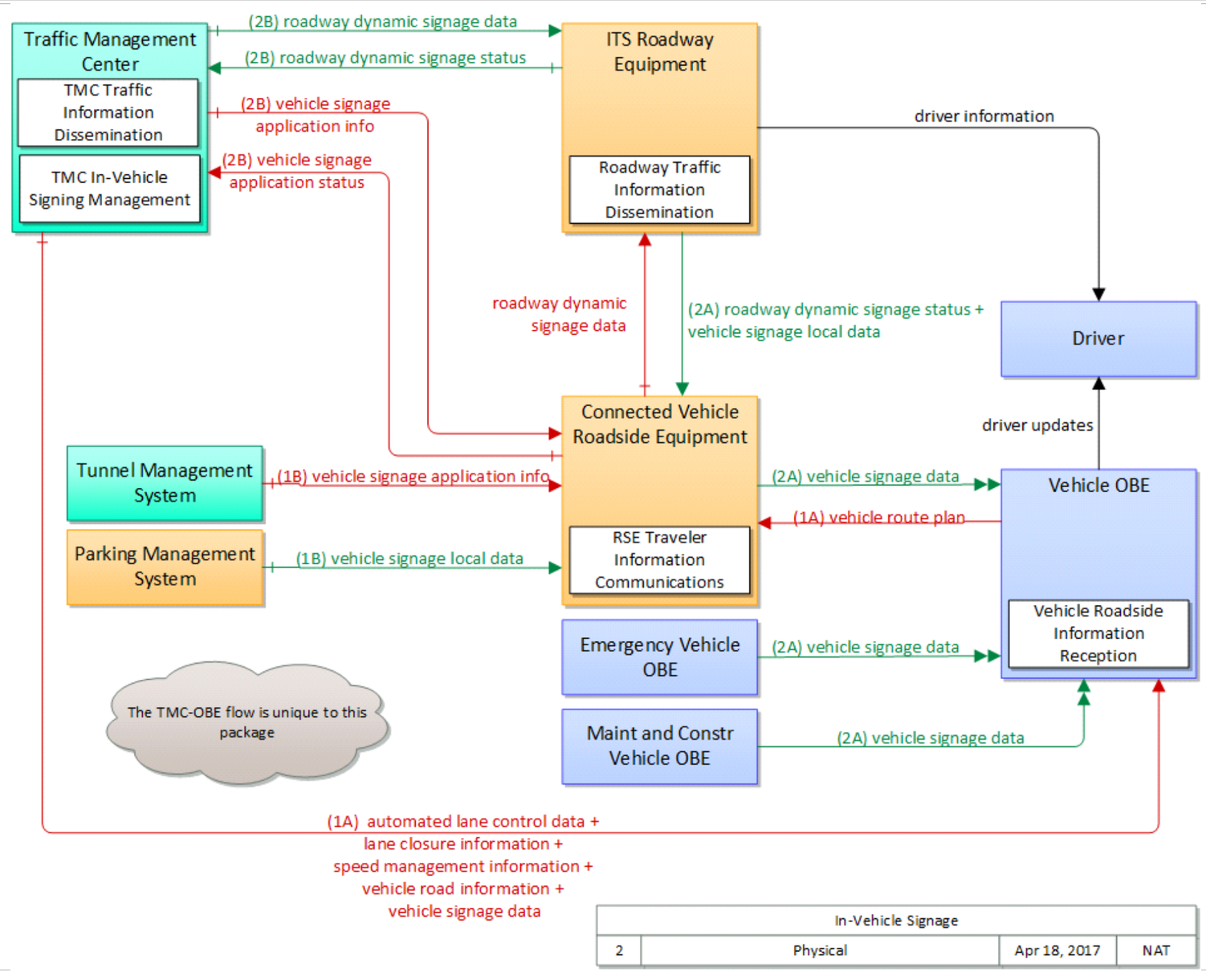
Flow Description:	This flow represents vehicle snapshots that may be provided by the vehicle to support traffic and environmental conditions monitoring. Snapshots are collected by the vehicle for specific events (e.g., when a sensor exceeds a threshold) or periodically an

Solution	JP: V-F Short Range Wireless Data (JP) - V-F Short Range Wireless Uplink Comm (JP)	Solution Issue Score:	15

Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Service Package:	In-Vehicle Signage	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

The In-Vehicle Signage application 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). This application also includes the capability for maintenance and construction 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 and around incidents.



In-Vehicle Signage			
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Service Package:	In-Vehicle Signage	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	ITS Roadway Equipment	Flow:	roadway dynamic signage data
Flow Description:	Information used to initialize, configure, and control dynamic message signs. This flow can provide message content and delivery attributes, local message store maintenance requests, control mode commands, status queries, and all other commands and associ				

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	vehicle signage application status
Flow Description:	In-vehicle signing application status reported by the RSE. This includes current operational state and status of the RSE and a log of messages sent to passing vehicles.				

Service Package:	In-Vehicle Signage	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	vehicle signage data
Flow Description:	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				

Solution	JP: F-V Short Range Wireless Data(JP) - F-V Short Range Wireless Downlink Comm (JP)	Solution Issue Score:	15

Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Source:	Emergency Vehicle OBE	Destination:	Vehicle OBE	Flow:	vehicle signage data
Flow Description:	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				

Service Package:	In-Vehicle Signage	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	roadway dynamic signage status
Flow Description:	Current operating status of dynamic message signs.				

Source:	ITS Roadway Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle signage local data
Flow Description:	Information provided by adjacent field equipment to support in-vehicle signing of dynamic information that is currently being displayed to passing drivers. This includes the dynamic information (e.g., grade crossing information, local traffic and road co				

Service Package:	In-Vehicle Signage	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	roadway dynamic signage status
Flow Description:	Current operating status of dynamic message signs.				

Source:	Maint and Constr Vehicle OBE	Destination:	Vehicle OBE	Flow:	vehicle signage data
Flow Description:	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				

Service Package:	In-Vehicle Signage	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Parking Management System	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle signage local data
Flow Description:	Information provided by adjacent field equipment to support in-vehicle signing of dynamic information that is currently being displayed to passing drivers. This includes the dynamic information (e.g., grade crossing information, local traffic and road co				

Source:	Traffic Management Center	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle signage application info
Flow Description:	In-vehicle signing application configuration data and messaging parameters. This flow provides a list of regulatory, warning, and information messages to be displayed and parameters that support scheduling and prioritizing messages to be issued to passin				

Service Package:	In-Vehicle Signage	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	roadway dynamic signage data
Flow Description:	Information used to initialize, configure, and control dynamic message signs. This flow can provide message content and delivery attributes, local message store maintenance requests, control mode commands, status queries, and all other commands and associ				

Source:	Traffic Management Center	Destination:	Vehicle OBE	Flow:	automated lane control data
Flow Description:	Control commands and operating parameters provided to RSEs that control and monitor automated vehicle operations, including platooned vehicles using cooperative adaptive cruise control. This flow includes platoon parameters including maximum platoon size				

Service Package:	In-Vehicle Signage	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	Vehicle OBE	Flow:	lane closure information
Flow Description:	Lane closure information provided to passing vehicles. This flow provides information about roadway configuration changes such as lane closures and shifts.				

Source:	Traffic Management Center	Destination:	Vehicle OBE	Flow:	speed management information
Flow Description:	Target speeds, speed advisories, and/or speed limit information provided to a vehicle. The information includes the current speed value(s), the route segment(s) and lane(s) where the speeds apply, and an indication of whether the speeds are suggested tar				

Service Package:	In-Vehicle Signage	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	Vehicle OBE	Flow:	vehicle road information
Flow Description:	Road geometry, layout, and traffic regulation information that is shared with and between vehicles.				

Source:	Traffic Management Center	Destination:	Vehicle OBE	Flow:	vehicle signage data
Flow Description:	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				

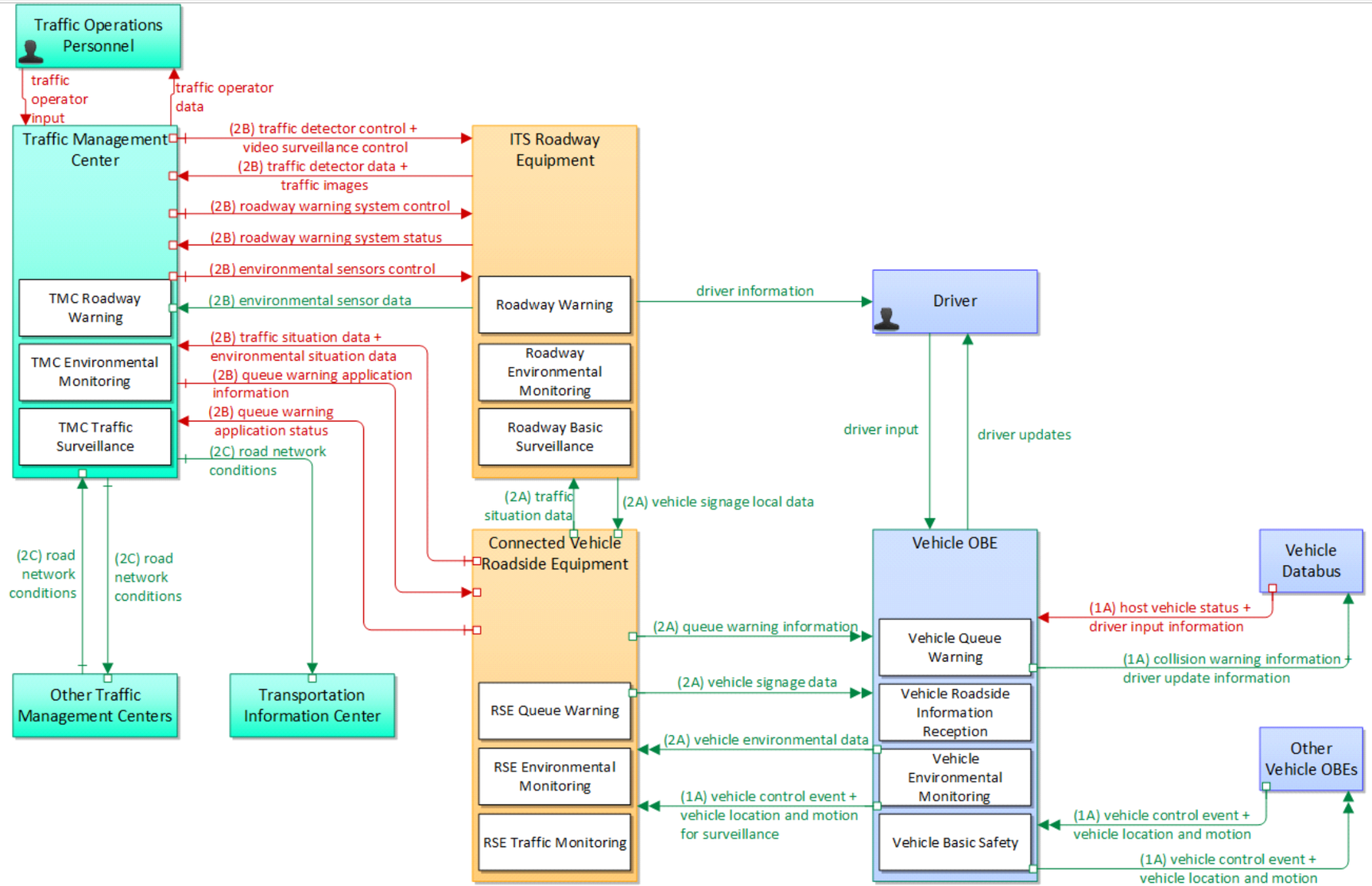
Service Package:	In-Vehicle Signage	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Tunnel Management System	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle signage application info
Flow Description:	In-vehicle signing application configuration data and messaging parameters. This flow provides a list of regulatory, warning, and information messages to be displayed and parameters that support scheduling and prioritizing messages to be issued to passin				

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle route plan
Flow Description:	It contains the route for the latest Vehicle Trip Plan that is being used to guide the Driver.				

Service Package:	Queue Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

The Queue Warning (Q-WARN) application utilizes connected vehicle technologies, including vehicle-to-infrastructure (V2I) and vehicle-to-vehicle (V2V) communications, to enable vehicles within the queue event to automatically broadcast their queued status information (e.g., rapid deceleration, disabled status, lane location) to nearby upstream vehicles and to infrastructure-based central entities (such as the TMC). The infrastructure will broadcast queue warnings to vehicles in order to minimize or prevent rear-end or other secondary collisions. The Q-WARN application is not intended to operate as a crash avoidance system (e.g., like the forward collision warning [FCW] safety application). In contrast to such systems, Q-WARN will engage well in advance of any potential crash situation, providing messages and information to the driver in order to minimize the likelihood of his needing to take crash avoidance or mitigation actions later. The Q-WARN application performs two essential tasks: queue determination (detection and/or prediction) and queue information dissemination. In order to perform these tasks, Q-WARN solutions can be vehicle-based or infrastructure-based or utilize a combination of each.



Queue Warning			
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Service Package:	Queue Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	ITS Roadway Equipment	Flow:	traffic situation data
Flow Description:	Current, aggregate traffic data collected from connected vehicles that can be used to supplement or replace information collected by roadside traffic detectors. It includes raw and/or processed reported vehicle speeds, counts, and other derived measures.				

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	environmental situation data
Flow Description:	Aggregated and filtered vehicle environmental data collected from vehicle safety and convenience systems including measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, anti-lock bra				

Service Package:	Queue Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	queue warning application status
Flow Description:	Queue warning application status reported by the RSE. This includes current operational state and status of the RSE and a record of measured vehicle speeds and identified queues.				

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	traffic situation data
Flow Description:	Current, aggregate traffic data collected from connected vehicles that can be used to supplement or replace information collected by roadside traffic detectors. It includes raw and/or processed reported vehicle speeds, counts, and other derived measures.				

Service Package:	Queue Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	queue warning information
Flow Description:	Information regarding formed or impending queues (location of the end of queue, estimated duration of the queue, and other descriptions of the queue condition) and recommendations for upstream vehicles including speed reduction, lane change, or diversion				

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	vehicle signage data
Flow Description:	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				

Solution	JP: F-V Short Range Wireless Data(JP) - F-V Short Range Wireless Downlink Comm (JP)	Solution Issue Score:	15

Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Service Package:	Queue Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle signage local data
Flow Description:	Information provided by adjacent field equipment to support in-vehicle signing of dynamic information that is currently being displayed to passing drivers. This includes the dynamic information (e.g., grade crossing information, local traffic and road co				

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	environmental sensor data
Flow Description:	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 en				

Service Package:	Queue Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	roadway warning system status
Flow Description:	Current operating status of roadway warning systems.				

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	traffic detector data
Flow Description:	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 opera				

Service Package:	Queue Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	traffic images
Flow Description:	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 only. Meta data is that describes the images is contained in another flow.				

Source:	Other Traffic Management Centers	Destination:	Traffic Management Center	Flow:	road network conditions
Flow Description:	Current and forecasted traffic information, road and weather conditions, and other road network status. Either raw data, processed data, or some combination of both may be provided by this flow. Information on diversions and alternate routes, closures,				

Service Package:	Queue Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Other Vehicle OBEs	Destination:	Vehicle OBE	Flow:	vehicle control event
Flow Description:	Notification that the vehicle has performed an emergency maneuver that could impact the safety of surrounding vehicles. This includes hard braking and activation of traction/stability control systems or other maneuvers that warrant immediate notification				

Source:	Other Vehicle OBEs	Destination:	Vehicle OBE	Flow:	vehicle location and motion
Flow Description:	Data describing the vehicle's location in three dimensions, heading, speed, acceleration, braking status, and size.				

Service Package:	Queue Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	Connected Vehicle Roadside Equipment	Flow:	queue warning application information
Flow Description:	Information regarding formed or impending queues (location of the end of queue, estimated duration of the queue, and other descriptions of the queue condition) and recommendations for upstream vehicles including speed reduction, lane change, or diversion				

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	environmental sensors control
Flow Description:	Data used to configure and control environmental sensors.				

Service Package:	Queue Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	roadway warning system control
Flow Description:	Information used to configure and control roadway warning systems.				

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	traffic detector control
Flow Description:	Information used to configure and control traffic sensor systems.				

Service Package:	Queue Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	video surveillance control
Flow Description:	Information used to configure and control video surveillance systems.				

Source:	Traffic Management Center	Destination:	Other Traffic Management Centers	Flow:	road network conditions
Flow Description:	Current and forecasted traffic information, road and weather conditions, and other road network status. Either raw data, processed data, or some combination of both may be provided by this flow. Information on diversions and alternate routes, closures,				

Service Package:	Queue Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	Transportation Information Center	Flow:	road network conditions
Flow Description:	Current and forecasted traffic information, road and weather conditions, and other road network status. Either raw data, processed data, or some combination of both may be provided by this flow. Information on diversions and alternate routes, closures,				

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle control event
Flow Description:	Notification that the vehicle has performed an emergency maneuver that could impact the safety of surrounding vehicles. This includes hard braking and activation of traction/stability control systems or other maneuvers that warrant immediate notification				

Service Package:	Queue Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle environmental data
Flow Description:	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 brak				

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle location and motion for surveillance
Flow Description:	Data describing the vehicle's location in three dimensions, heading, speed, acceleration, braking status, and size. This flow represents monitoring of basic safety data ('vehicle location and motion') broadcast by passing connected vehicles for use in ve				

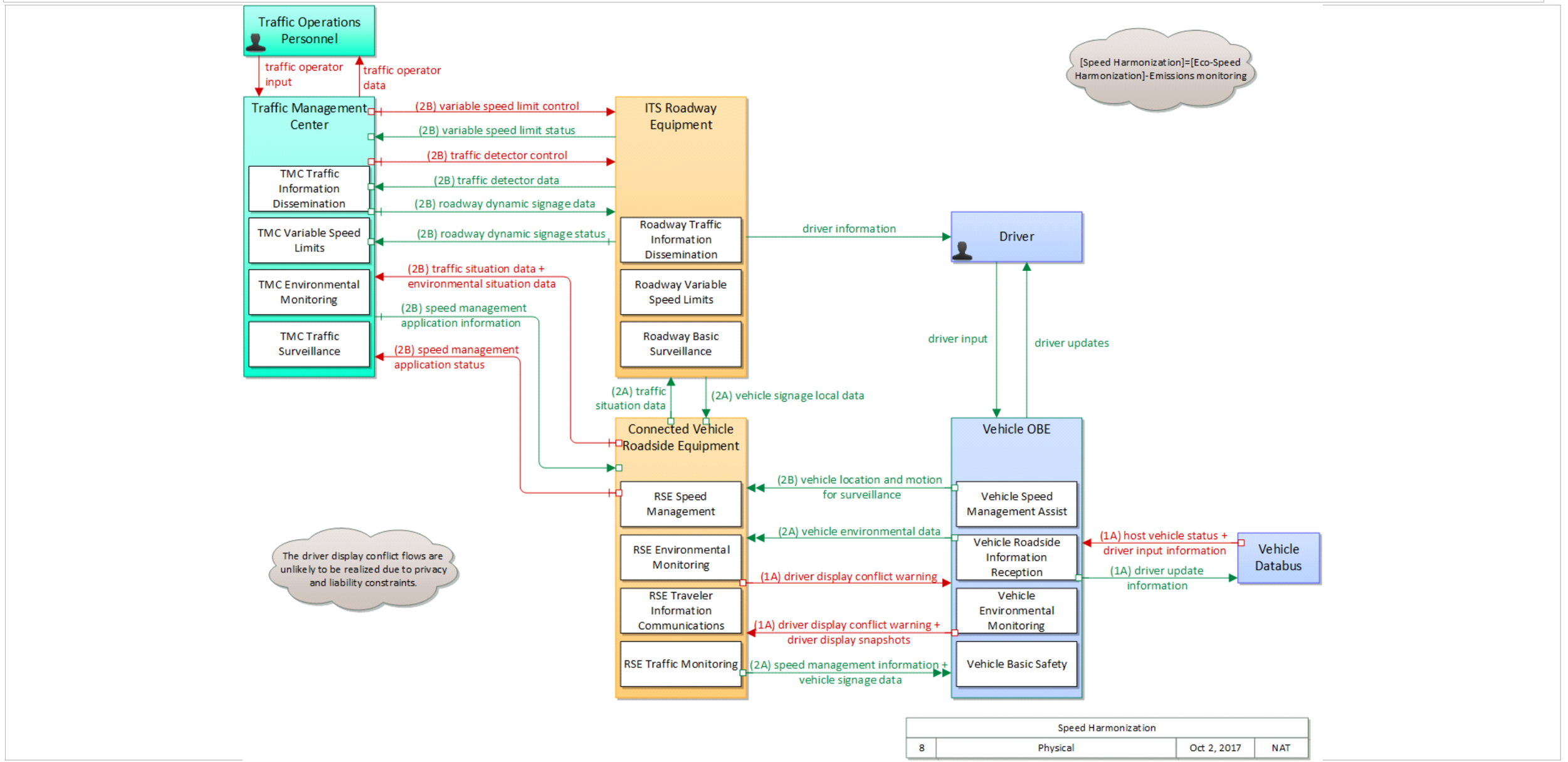
Service Package:	Queue Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Vehicle OBE	Destination:	Other Vehicle OBEs	Flow:	vehicle control event
Flow Description:	Notification that the vehicle has performed an emergency maneuver that could impact the safety of surrounding vehicles. This includes hard braking and activation of traction/stability control systems or other maneuvers that warrant immediate notification				

Source:	Vehicle OBE	Destination:	Other Vehicle OBEs	Flow:	vehicle location and motion
Flow Description:	Data describing the vehicle's location in three dimensions, heading, speed, acceleration, braking status, and size.				

Service Package:	Speed Harmonization	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

The Speed Harmonization application determines speed recommendations based on traffic conditions and weather information. The speed recommendations can be regulatory (e.g. variable speed limits) or advisory. The purpose of speed harmonization is to change traffic speed on links that approach areas of traffic congestion, bottlenecks, incidents, special events, and other conditions that affect flow. Speed harmonization assists in maintaining flow, reducing unnecessary stops and starts, and maintaining consistent speeds. The application utilizes connected vehicle V2I communication to detect the precipitating roadway or congestion conditions that might necessitate speed harmonization, to generate the appropriate response plans and speed recommendation strategies for upstream traffic, and to broadcast such recommendations to the affected vehicles. The speed recommendations can be provided in-vehicle for connected vehicles, or through roadside signage for non-connected vehicles.



Speed Harmonization			
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Service Package:	Speed Harmonization	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	ITS Roadway Equipment	Flow:	traffic situation data
Flow Description:	Current, aggregate traffic data collected from connected vehicles that can be used to supplement or replace information collected by roadside traffic detectors. It includes raw and/or processed reported vehicle speeds, counts, and other derived measures.				

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	environmental situation data
Flow Description:	Aggregated and filtered vehicle environmental data collected from vehicle safety and convenience systems including measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, anti-lock bra				

Service Package:	Speed Harmonization	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	speed management application status
Flow Description:	Speed management application status reported by the RSE. This includes current operational state and status of the RSE and a record of measured vehicle speeds and current speed targets, advisories, and limits.				

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	traffic situation data
Flow Description:	Current, aggregate traffic data collected from connected vehicles that can be used to supplement or replace information collected by roadside traffic detectors. It includes raw and/or processed reported vehicle speeds, counts, and other derived measures.				

Service Package:	Speed Harmonization	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	driver display conflict warning
Flow Description:	A warning that the vehicle is displaying information in-vehicle that differs from information displayed by the infrastructure.				

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	speed management information
Flow Description:	Target speeds, speed advisories, and/or speed limit information provided to a vehicle. The information includes the current speed value(s), the route segment(s) and lane(s) where the speeds apply, and an indication of whether the speeds are suggested tar				

Service Package:	Speed Harmonization	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	vehicle signage data

Flow Description:	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

Solution	JP: F-V Short Range Wireless Data(JP) - F-V Short Range Wireless Downlink Comm (JP)	Solution Issue Score:	15

Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Source:	ITS Roadway Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle signage local data

Flow Description:	Information provided by adjacent field equipment to support in-vehicle signing of dynamic information that is currently being displayed to passing drivers. This includes the dynamic information (e.g., grade crossing information, local traffic and road co

Service Package:	Speed Harmonization	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	roadway dynamic signage status
Flow Description:	Current operating status of dynamic message signs.				

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	traffic detector data
Flow Description:	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 opera				

Service Package:	Speed Harmonization	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	variable speed limit status
Flow Description:	Current operating status of the variable speed limit systems including the state of the equipment.				

Source:	Traffic Management Center	Destination:	Connected Vehicle Roadside Equipment	Flow:	speed management application information
Flow Description:	Current speed targets, advisories, and limits including time of day, week, or season speed limits as necessary, and application parameters and thresholds. This flow also supports remote control of the application so the application can be taken offline,				

Service Package:	Speed Harmonization	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	roadway dynamic signage data
Flow Description:	Information used to initialize, configure, and control dynamic message signs. This flow can provide message content and delivery attributes, local message store maintenance requests, control mode commands, status queries, and all other commands and associ				

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	traffic detector control
Flow Description:	Information used to configure and control traffic sensor systems.				

Service Package:	Speed Harmonization	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	variable speed limit control
Flow Description:	Information used to configure and control variable speed limit systems including the equipment used to provide current speed limits and other information to drivers.				

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	driver display conflict warning
Flow Description:	A warning that the vehicle is displaying information in-vehicle that differs from information displayed by the infrastructure.				

Service Package:	Speed Harmonization	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	driver display snapshots
Flow Description:	Record of information that is being displayed to the driver. For use in detecting conflicts between in-vehicle displays and information displayed by the infrastructure.				

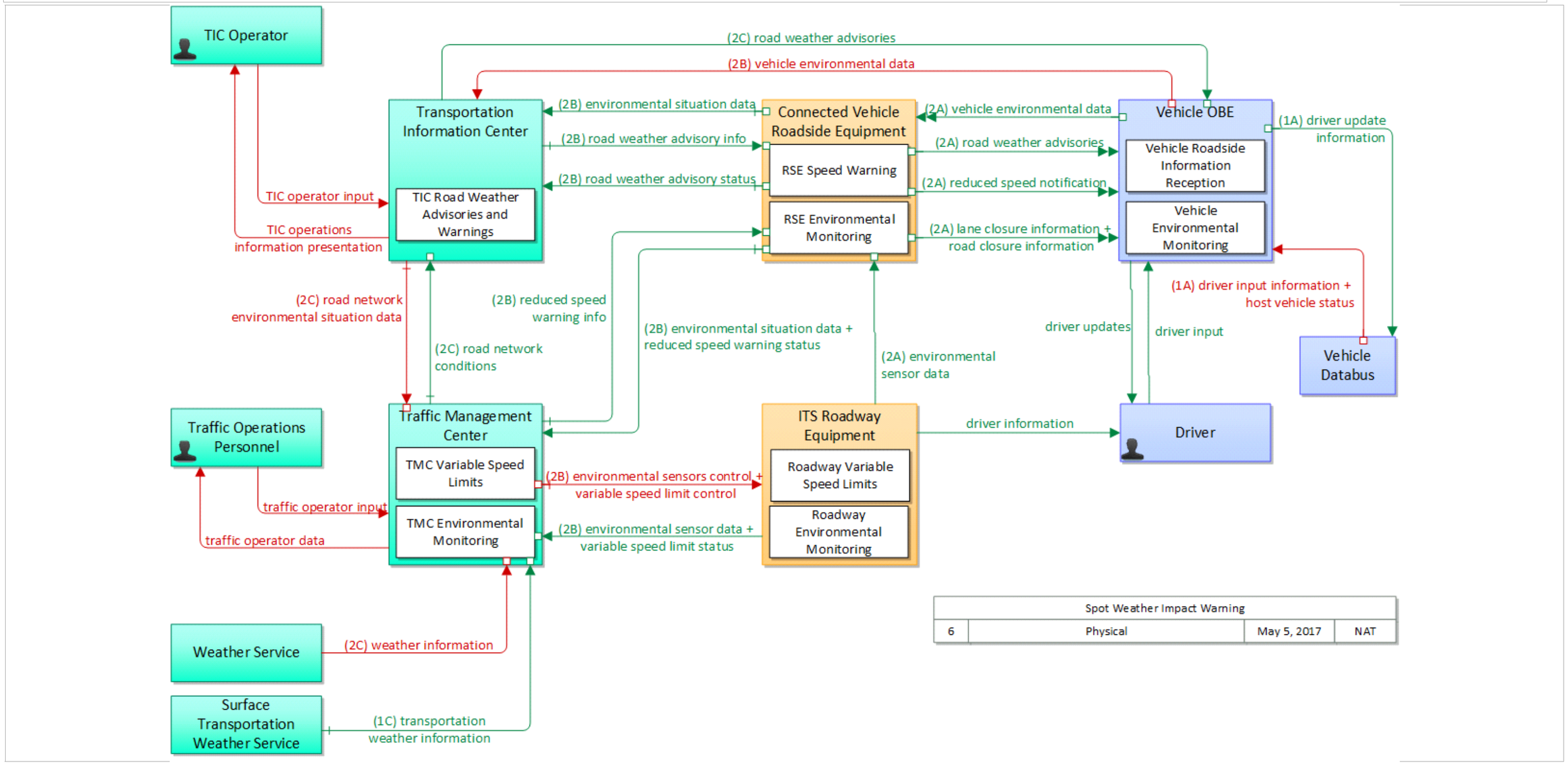
Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle environmental data
Flow Description:	Data from vehicle safety and convenience systems that can be used to estimate environmental conditions, including measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, anti-lock brak				

Service Package:	Speed Harmonization	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle location and motion for surveillance
Flow Description:	Data describing the vehicle's location in three dimensions, heading, speed, acceleration, braking status, and size. This flow represents monitoring of basic safety data ('vehicle location and motion') broadcast by passing connected vehicles for use in ve				

Service Package:	Spot Weather Impact Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	45

The Spot Weather Impact Warning (SWIW) application will alert drivers to unsafe conditions or road closure at specific points on the downstream roadway as a result of weather-related impacts, which include, but are not limited to high winds, flood conditions, ice, or fog. Application designed to use standalone weather systems to warn drivers about inclement weather conditions that may impact travel conditions. Real time weather information is collected via RWIS or via vehicle based probe data. The information is processed to determine the nature of the alert or warning to be delivered and then communicated to connected vehicles. If the warning includes road closure then diversion information can be provided. For non-equipped vehicles the alerts or warnings will be provided via roadway signage. In addition, the roadway equipment may calculate the appropriate speed for current weather conditions and provide this information to the connected vehicle or on roadway signage.



Service Package:	Spot Weather Impact Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	45

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	environmental situation data
Flow Description:	Aggregated and filtered vehicle environmental data collected from vehicle safety and convenience systems including measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, anti-lock bra				

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	reduced speed warning status
Flow Description:	Speed warning application status reported by the RSE. This includes current operational state and status of the RSE and a record of measured vehicle speeds and notifications, alerts, and warnings issued.				

Service Package:	Spot Weather Impact Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	45

Source:	Connected Vehicle Roadside Equipment	Destination:	Transportation Information Center	Flow:	environmental situation data
Flow Description:	Aggregated and filtered vehicle environmental data collected from vehicle safety and convenience systems including measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction control status, anti-lock bra				

Source:	Connected Vehicle Roadside Equipment	Destination:	Transportation Information Center	Flow:	road weather advisory status
Flow Description:	Current RSE application status that is monitored by the back office center including the operational state of the RSE, current configuration parameters, and a log of advisories issued. The advisories may include advisories that are issued by the RSE base				

Service Package:	Spot Weather Impact Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	45

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	lane closure information

Flow Description:	Lane closure information provided to passing vehicles. This flow provides information about roadway configuration changes such as lane closures and shifts.

Solution	JP: F-V Short Range Wireless Data(JP) - F-V Short Range Wireless Downlink Comm (JP)	Solution Issue Score:	15

Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	reduced speed notification

Flow Description:	Reduced speed zone information provided to passing vehicles. This flow provides the reduced speed limit, the location and extent of the reduced speed zone, and associated warning information.

Solution	JP: F-V Short Range Wireless Data(JP) - F-V Short Range Wireless Downlink Comm (JP)	Solution Issue Score:	15

Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Service Package:	Spot Weather Impact Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	45

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	road closure information
Flow Description:	Road closure information provided to passing vehicles. This flow provides information about weather related road closures along with diversion information.				

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	road weather advisories
Flow Description:	Segment-specific weather and road conditions including real-time advisories of deteriorating road and weather conditions, medium-term advisories for the next 2-12 hours, and long-term advisories more than 12 hours into the future. The advisories may incl				

Solution	JP: F-V Short Range Wireless Data(JP) - F-V Short Range Wireless Downlink Comm (JP)	Solution Issue Score:	15

Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Service Package:	Spot Weather Impact Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	45

Source:	ITS Roadway Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	environmental sensor data
Flow Description:	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 en				

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	environmental sensor data
Flow Description:	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 en				

Service Package:	Spot Weather Impact Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	45

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	variable speed limit status
Flow Description:	Current operating status of the variable speed limit systems including the state of the equipment.				

Source:	Surface Transportation Weather Service	Destination:	Traffic Management Center	Flow:	transportation weather information
Flow Description:	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				

Service Package:	Spot Weather Impact Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	45

Source:	Traffic Management Center	Destination:	Connected Vehicle Roadside Equipment	Flow:	reduced speed warning info
Flow Description:	Roadway configuration data, current speed limits including time of day, week, or season speed limits as necessary, and warning parameters and thresholds. This flow also supports remote control of the application so the application can be taken offline, r				

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	environmental sensors control
Flow Description:	Data used to configure and control environmental sensors.				

Service Package:	Spot Weather Impact Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	45

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	variable speed limit control
Flow Description:	Information used to configure and control variable speed limit systems including the equipment used to provide current speed limits and other information to drivers.				

Source:	Traffic Management Center	Destination:	Transportation Information Center	Flow:	road network conditions
Flow Description:	Current and forecasted traffic information, road and weather conditions, and other road network status. Either raw data, processed data, or some combination of both may be provided by this flow. Information on diversions and alternate routes, closures,				

Service Package:	Spot Weather Impact Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	45

Source:	Transportation Information Center	Destination:	Connected Vehicle Roadside Equipment	Flow:	road weather advisory info
Flow Description:	Road weather advisories and associated configuration and control information that are used to manage the RSE. Advisories include segment-specific weather and road conditions including real-time advisories of deteriorating road and weather conditions, med				

Source:	Transportation Information Center	Destination:	Traffic Management Center	Flow:	road network environmental situation data
Flow Description:	Aggregated environmental situation data collected from vehicles and other sources for the road network. Aggregated information would include measured air temperature, exterior light status, wiper status, sun sensor status, rain sensor status, traction c				

Service Package:	Spot Weather Impact Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	45

Source:	Transportation Information Center	Destination:	Vehicle OBE	Flow:	road weather advisories
Flow Description:	Segment-specific weather and road conditions including real-time advisories of deteriorating road and weather conditions, medium-term advisories for the next 2-12 hours, and long-term advisories more than 12 hours into the future. The advisories may incl				

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle environmental data
Flow Description:	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 brak				

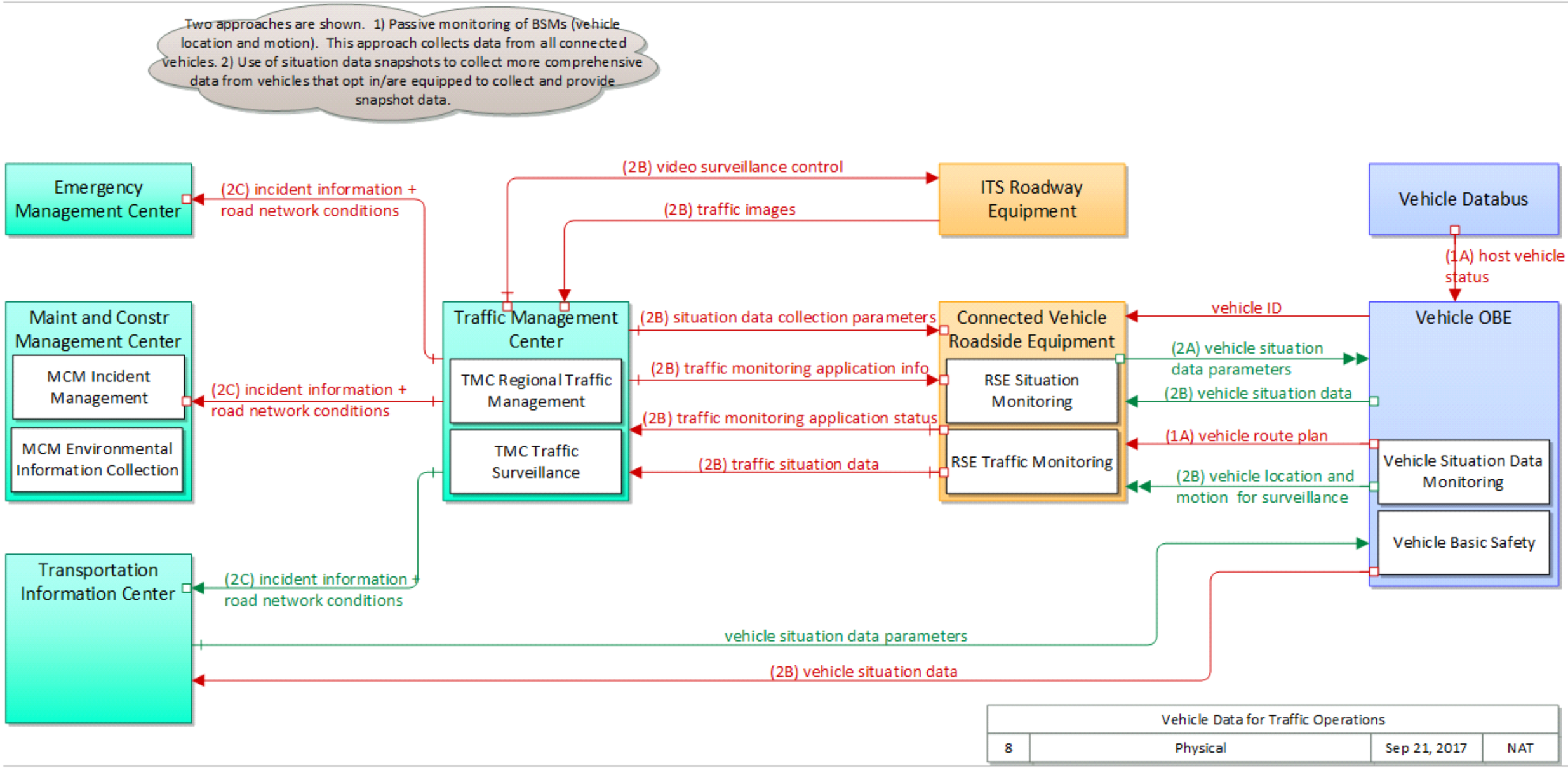
Service Package:	Spot Weather Impact Warning	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	45

Source:	Vehicle OBE	Destination:	Transportation Information Center	Flow:	vehicle environmental data
Flow Description:	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 brak				

Source:	Weather Service	Destination:	Traffic Management Center	Flow:	weather information
Flow Description:	Accumulated forecasted and current weather data (e.g., temperature, pressure, wind speed, wind direction, humidity, precipitation, visibility, light conditions, etc.).				

Service Package:	Vehicle Data for Traffic Operations	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	30

The Vehicle Data for Traffic Operations (VDTO) application uses probe data information obtained from vehicles in the network to support traffic operations, including incident detection and the implementation of localized operational strategies. The implantation of incident detection enables transportation agencies to determine the location of potential incidents so the agencies can respond more quickly to the incident and mitigate any negative impacts to the transportation network. Vehicle data that can be used to detect potential incidents include changes in vehicle speeds indicating the disruption of traffic flow, when a vehicle's safety systems have been activated or deployed, or sudden vehicle turns or deceleration at a specific location (indicating a potential obstacle in the roadway). Operational strategies might include altering signal timing based on traffic flows or using vehicle data collected on the freeway mainline to employ speed harmonization or to optimize ramp metering rates.



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Service Package:	Vehicle Data for Traffic Operations	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	30

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	traffic monitoring application status
Flow Description:	Traffic monitoring application status reported by the RSE. This includes current operational state and status of the RSE and a record of system operation.				

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	traffic situation data
Flow Description:	Current, aggregate traffic data collected from connected vehicles that can be used to supplement or replace information collected by roadside traffic detectors. It includes raw and/or processed reported vehicle speeds, counts, and other derived measures.				

Service Package:	Vehicle Data for Traffic Operations	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	30

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	vehicle situation data parameters
Flow Description:	A request for vehicle situation data that includes parameters used to control the data that is reported and the flow of data reported by the vehicle. This flow identifies the type of data/snapshots that are requested and reporting parameters such as snap				

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	traffic images
Flow Description:	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 only. Meta data is that describes the images is contained in another flow.				

Service Package:	Vehicle Data for Traffic Operations	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	30

Source:	Traffic Management Center	Destination:	Connected Vehicle Roadside Equipment	Flow:	situation data collection parameters
Flow Description:	The parameters that are used to control the flow of situation data from the RSE. This flow identifies the type of data/snapshots that are requested from passing vehicles and reporting parameters such as snapshot frequency, filtering criteria (data thres				

Source:	Traffic Management Center	Destination:	Connected Vehicle Roadside Equipment	Flow:	traffic monitoring application info
Flow Description:	Traffic monitoring application parameters and thresholds that control the filtering, aggregation, and range of measures that are collected, derived, and reported. This flow also supports remote control of the application so the application can be taken o				

Service Package:	Vehicle Data for Traffic Operations	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	30

Source:	Traffic Management Center	Destination:	Emergency Management Center	Flow:	incident information
Flow Description:	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 transp				

Source:	Traffic Management Center	Destination:	Emergency Management Center	Flow:	road network conditions
Flow Description:	Current and forecasted traffic information, road and weather conditions, and other road network status. Either raw data, processed data, or some combination of both may be provided by this flow. Information on diversions and alternate routes, closures,				

Service Package:	Vehicle Data for Traffic Operations	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	30

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	video surveillance control
Flow Description:	Information used to configure and control video surveillance systems.				

Source:	Traffic Management Center	Destination:	Maint and Constr Management Center	Flow:	incident information
Flow Description:	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 transp				

Service Package:	Vehicle Data for Traffic Operations	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	30

Source:	Traffic Management Center	Destination:	Maint and Constr Management Center	Flow:	road network conditions
Flow Description:	Current and forecasted traffic information, road and weather conditions, and other road network status. Either raw data, processed data, or some combination of both may be provided by this flow. Information on diversions and alternate routes, closures,				

Source:	Traffic Management Center	Destination:	Transportation Information Center	Flow:	incident information
Flow Description:	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 transp				

Service Package:	Vehicle Data for Traffic Operations	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	30

Source:	Traffic Management Center	Destination:	Transportation Information Center	Flow:	road network conditions
Flow Description:	Current and forecasted traffic information, road and weather conditions, and other road network status. Either raw data, processed data, or some combination of both may be provided by this flow. Information on diversions and alternate routes, closures,				

Source:	Transportation Information Center	Destination:	Vehicle OBE	Flow:	vehicle situation data parameters
Flow Description:	A request for vehicle situation data that includes parameters used to control the data that is reported and the flow of data reported by the vehicle. This flow identifies the type of data/snapshots that are requested and reporting parameters such as snap				

Service Package:	Vehicle Data for Traffic Operations	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	30

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle ID
Flow Description:	It contains the ID of the vehicle, sent by the on-board electronics, to facilitate probe data collection and other activities. In some jurisdictions IDs are used for enforcement, reservations/booking, and floating car (probe/situation data collection) ap				

Solution	JP: V-F Short Range Wireless Data (JP) - V-F Short Range Wireless Uplink Comm (JP)	Solution Issue Score:	15

Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle location and motion for surveillance
Flow Description:	Data describing the vehicle's location in three dimensions, heading, speed, acceleration, braking status, and size. This flow represents monitoring of basic safety data ('vehicle location and motion') broadcast by passing connected vehicles for use in ve				

Service Package:	Vehicle Data for Traffic Operations	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	30

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle route plan
Flow Description:	It contains the route for the latest Vehicle Trip Plan that is being used to guide the Driver.				

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle situation data
Flow Description:	This flow represents vehicle snapshots that may be provided by the vehicle to support traffic and environmental conditions monitoring. Snapshots are collected by the vehicle for specific events (e.g., when a sensor exceeds a threshold) or periodically an				

Solution	JP: V-F Short Range Wireless Data (JP) - V-F Short Range Wireless Uplink Comm (JP)	Solution Issue Score:	15

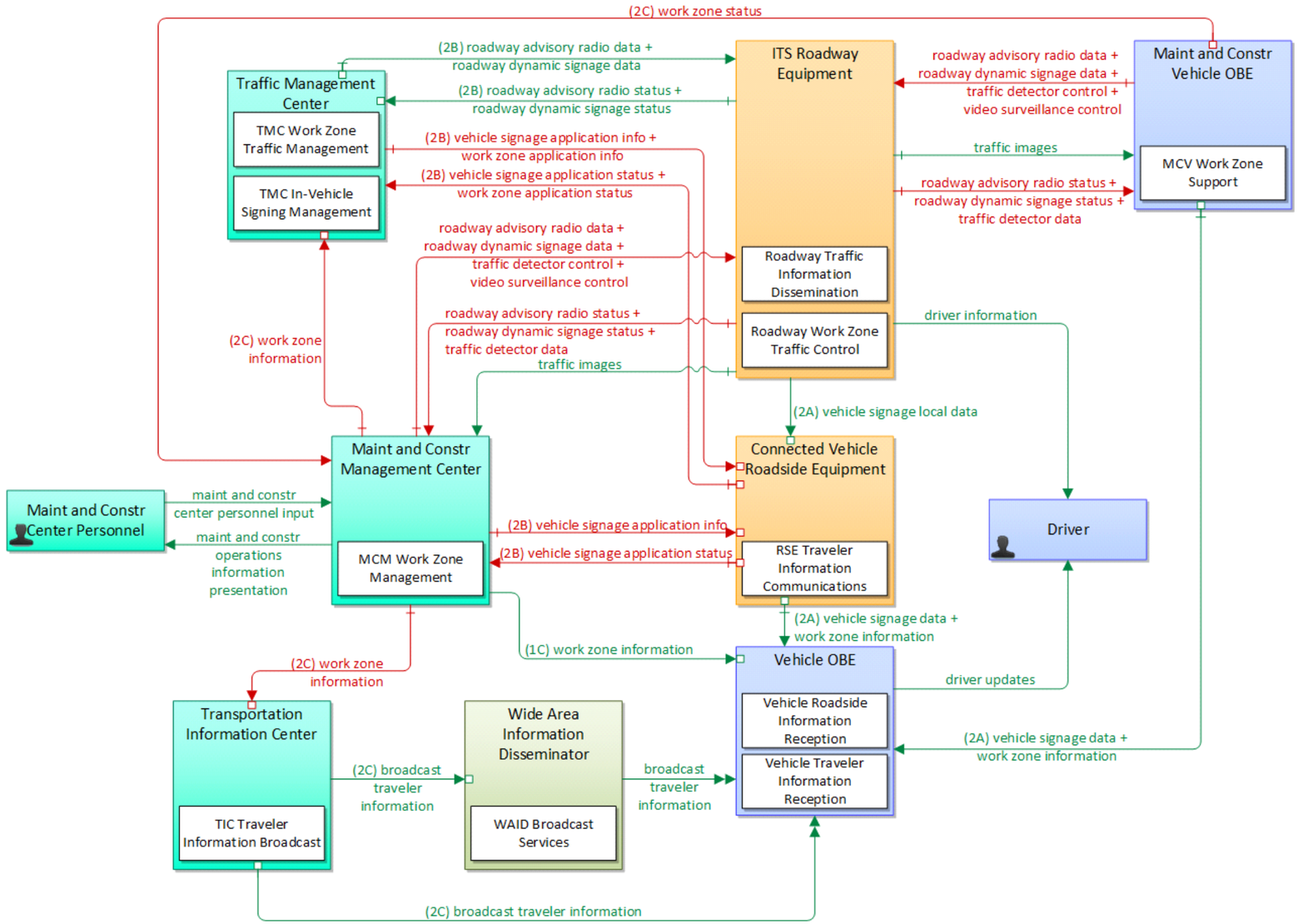
Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Service Package:	Vehicle Data for Traffic Operations	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	30

Source:	Vehicle OBE	Destination:	Transportation Information Center	Flow:	vehicle situation data
Flow Description:	This flow represents vehicle snapshots that may be provided by the vehicle to support traffic and environmental conditions monitoring. Snapshots are collected by the vehicle for specific events (e.g., when a sensor exceeds a threshold) or periodically an				

Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

The Warnings about Upcoming Work Zone (WUWZ) application provides information about the conditions that exist in a work zone to vehicles that are approaching the work zone. This application provides approaching vehicles with information about work zone activities that may result in unsafe conditions to the vehicle, such as obstructions in the vehicle's travel lane, lane closures, lane shifts, speed reductions or vehicles entering/exiting the work zone.



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Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle signage local data
Flow Description:	Information provided by adjacent field equipment to support in-vehicle signing of dynamic information that is currently being displayed to passing drivers. This includes the dynamic information (e.g., grade crossing information, local traffic and road co				

Source:	ITS Roadway Equipment	Destination:	Maint and Constr Management Center	Flow:	roadway advisory radio status
Flow Description:	Current operating status of highway advisory radios.				

Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Maint and Constr Management Center	Flow:	roadway dynamic signage status
Flow Description:	Current operating status of dynamic message signs.				

Source:	ITS Roadway Equipment	Destination:	Maint and Constr Management Center	Flow:	traffic detector data
Flow Description:	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 opera				

Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Maint and Constr Management Center	Flow:	traffic images
Flow Description:	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 only. Meta data is that describes the images is contained in another flow.				

Source:	ITS Roadway Equipment	Destination:	Maint and Constr Vehicle OBE	Flow:	roadway dynamic signage status
Flow Description:	Current operating status of dynamic message signs.				

Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Maint and Constr Vehicle OBE	Flow:	traffic detector data
Flow Description:	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 opera				

Source:	ITS Roadway Equipment	Destination:	Maint and Constr Vehicle OBE	Flow:	traffic images
Flow Description:	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 only. Meta data is that describes the images is contained in another flow.				

Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	roadway advisory radio status
Flow Description:	Current operating status of highway advisory radios.				

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	roadway dynamic signage status
Flow Description:	Current operating status of dynamic message signs.				

Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Maint and Constr Management Center	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle signage application info
Flow Description:	In-vehicle signing application configuration data and messaging parameters. This flow provides a list of regulatory, warning, and information messages to be displayed and parameters that support scheduling and prioritizing messages to be issued to passin				

Source:	Maint and Constr Management Center	Destination:	ITS Roadway Equipment	Flow:	roadway advisory radio data
Flow Description:	Information used to initialize, configure, and control roadside highway advisory radio. This flow can provide message content and delivery attributes, local message store maintenance requests, control mode commands, status queries, and all other commands				

Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Maint and Constr Management Center	Destination:	ITS Roadway Equipment	Flow:	roadway dynamic signage data
Flow Description:	Information used to initialize, configure, and control dynamic message signs. This flow can provide message content and delivery attributes, local message store maintenance requests, control mode commands, status queries, and all other commands and associ				

Source:	Maint and Constr Management Center	Destination:	ITS Roadway Equipment	Flow:	traffic detector control
Flow Description:	Information used to configure and control traffic sensor systems.				

Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Maint and Constr Management Center	Destination:	ITS Roadway Equipment	Flow:	video surveillance control
Flow Description:	Information used to configure and control video surveillance systems.				

Source:	Maint and Constr Management Center	Destination:	Traffic Management Center	Flow:	work zone information
Flow Description:	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, alterna				

Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Maint and Constr Management Center	Destination:	Transportation Information Center	Flow:	work zone information
Flow Description:	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, alterna				

Source:	Maint and Constr Management Center	Destination:	Vehicle OBE	Flow:	work zone information
Flow Description:	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, alterna				

Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Maint and Constr Vehicle OBE	Destination:	ITS Roadway Equipment	Flow:	roadway dynamic signage data
Flow Description:	Information used to initialize, configure, and control dynamic message signs. This flow can provide message content and delivery attributes, local message store maintenance requests, control mode commands, status queries, and all other commands and associ				

Source:	Maint and Constr Vehicle OBE	Destination:	ITS Roadway Equipment	Flow:	traffic detector control
Flow Description:	Information used to configure and control traffic sensor systems.				

Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Maint and Constr Vehicle OBE	Destination:	ITS Roadway Equipment	Flow:	video surveillance control
Flow Description:	Information used to configure and control video surveillance systems.				

Source:	Maint and Constr Vehicle OBE	Destination:	Maint and Constr Management Center	Flow:	work zone status
Flow Description:	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.				

Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Maint and Constr Vehicle OBE	Destination:	Vehicle OBE	Flow:	vehicle signage data
Flow Description:	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				

Source:	Maint and Constr Vehicle OBE	Destination:	Vehicle OBE	Flow:	work zone information
Flow Description:	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, alterna				

Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle signage application info
Flow Description:	In-vehicle signing application configuration data and messaging parameters. This flow provides a list of regulatory, warning, and information messages to be displayed and parameters that support scheduling and prioritizing messages to be issued to passin				

Source:	Connected Vehicle Roadside Equipment	Destination:	Maint and Constr Management Center	Flow:	vehicle signage application status
Flow Description:	In-vehicle signing application status reported by the RSE. This includes current operational state and status of the RSE and a log of messages sent to passing vehicles.				

Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	vehicle signage application status
Flow Description:	In-vehicle signing application status reported by the RSE. This includes current operational state and status of the RSE and a log of messages sent to passing vehicles.				

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	work zone application status
Flow Description:	Work zone application status reported by the RSE. This includes current operational state and status of the RSE.				

Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	vehicle signage data
Flow Description:	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				

Solution	JP: F-V Short Range Wireless Data(JP) - F-V Short Range Wireless Downlink Comm (JP)	Solution Issue Score:	15

Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	work zone information
Flow Description:	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, alterna				

Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	Connected Vehicle Roadside Equipment	Flow:	work zone application info
Flow Description:	Work zone application configuration data and messaging parameters. This flow includes a description of work zones, impact of the workzone on travel, alternate routes and regulatory changes such as revised speed limits inside the work zone. May include a m				

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	roadway advisory radio data
Flow Description:	Information used to initialize, configure, and control roadside highway advisory radio. This flow can provide message content and delivery attributes, local message store maintenance requests, control mode commands, status queries, and all other commands				

Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	roadway dynamic signage data
Flow Description:	Information used to initialize, configure, and control dynamic message signs. This flow can provide message content and delivery attributes, local message store maintenance requests, control mode commands, status queries, and all other commands and associ				

Source:	Transportation Information Center	Destination:	Vehicle OBE	Flow:	broadcast traveler information
Flow Description:	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.				

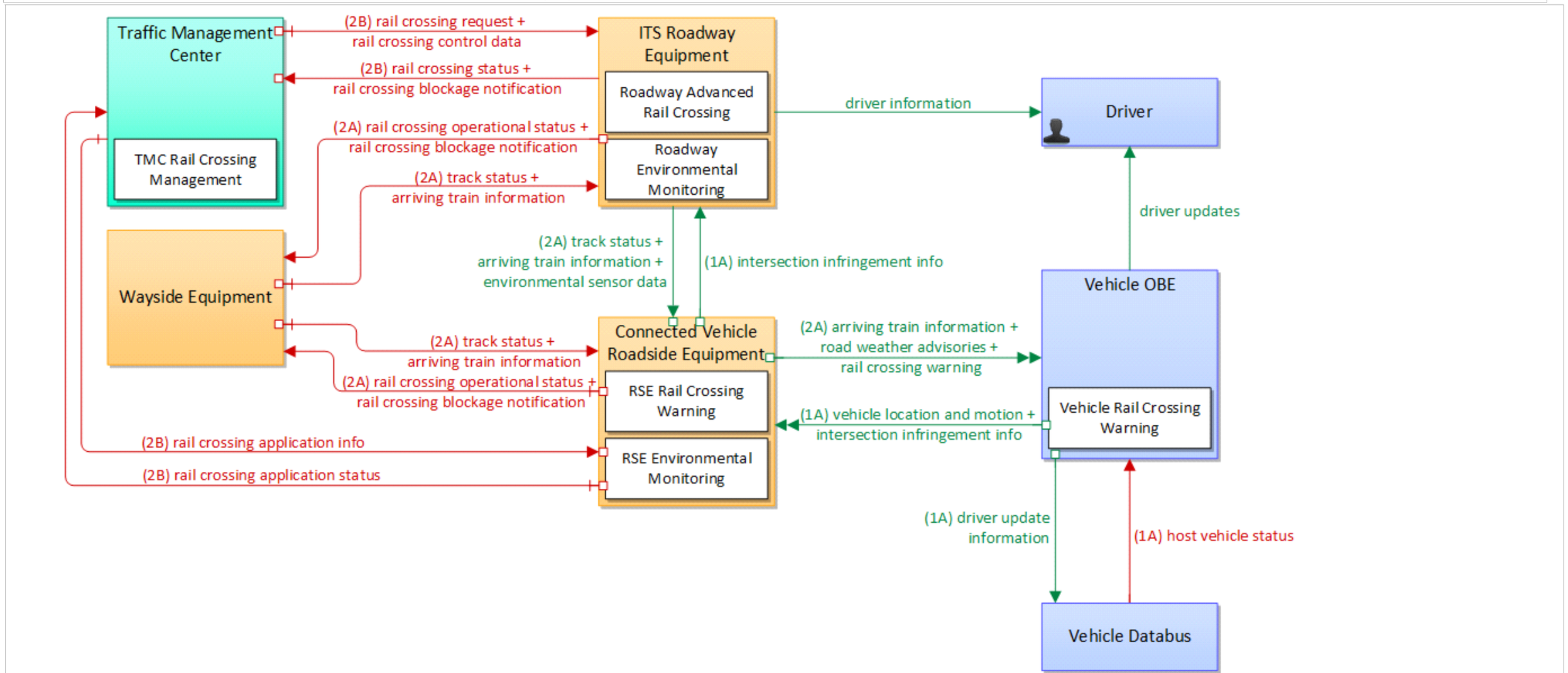
Service Package:	Warnings about Upcoming Work Zone	Deployment Timeframe:	Day 1	Best (minimum) Issue Score	15

Source:	Transportation Information Center	Destination:	Wide Area Information Disseminator	Flow:	broadcast traveler information
Flow Description:	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.				

Source:	Wide Area Information Disseminator	Destination:	Vehicle OBE	Flow:	broadcast traveler information
Flow Description:	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.				

Service Package:	Railroad Crossing Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

The Railroad Crossing Violation Warning (RCVW) application will alert and/or warn drivers who are approaching an at-grade railroad crossing if they are on a crash-imminent trajectory to collide with a crossing or approaching train. This will be achieved through the integration of both vehicle-based and infrastructure-based technologies. The RSE sends to the vehicle detailed geometric information about the intersection, as well as information about whether a train is approaching or blocking the intersection. The geometric information could be obtained from an RSE at the intersection, or obtained from an RSE at some earlier point in the vehicles trip. The information about the approach or presence of a train would be obtained from the infrastructure via a connection between the rail infrastructure and the RSE. The information received from the RSE at the intersection could also be augmented with road surface information or other weather-related data. A more advanced version of the application could provide train arrival information or information about the amount of time the Highway Rail Intersection (HRI) will be blocked by the train.



Railroad Crossing Violation Warning			
6	Physical	Jul 20, 2015	NAT

Service Package:	Railroad Crossing Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	ITS Roadway Equipment	Flow:	intersection infringement info
Flow Description:	Vehicle path information sent by a vehicle that is performing an unpermitted movement at an intersection such as a stop sign violation or running a red light. Tthis also includes information about possible conflicts with other road users in the vehicle's				

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	rail crossing application status
Flow Description:	Rail crossing application status reported by the RSE. This includes current operational state and status of the RSE and a record of rail crossing events and alerts and warnings issued.				

Service Package:	Railroad Crossing Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	arriving train information
Flow Description:	Information for a train approaching a highway-rail intersection that may include direction and allow calculation of approximate arrival time and closure duration.				

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	rail crossing warning
Flow Description:	A warning of a train approaching or already in a highway rail intersection.				

Service Package:	Railroad Crossing Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	road weather advisories
Flow Description:	Segment-specific weather and road conditions including real-time advisories of deteriorating road and weather conditions, medium-term advisories for the next 2-12 hours, and long-term advisories more than 12 hours into the future. The advisories may incl				

Solution	JP: F-V Short Range Wireless Data(JP) - F-V Short Range Wireless Downlink Comm (JP)	Solution Issue Score:	15

Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Source:	Connected Vehicle Roadside Equipment	Destination:	Wayside Equipment	Flow:	rail crossing blockage notification
Flow Description:	Notification that a highway-rail intersection is obstructed and supporting information.				

Service Package:	Railroad Crossing Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Wayside Equipment	Flow:	rail crossing operational status
Flow Description:	Status of the highway-rail grade crossing equipment including both the current state or mode of operation and the current equipment condition.				

Source:	ITS Roadway Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	arriving train information
Flow Description:	Information for a train approaching a highway-rail intersection that may include direction and allow calculation of approximate arrival time and closure duration.				

Service Package:	Railroad Crossing Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	environmental sensor data
Flow Description:	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 en				

Source:	ITS Roadway Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	track status
Flow Description:	Current status of the wayside equipment and notification of an arriving train.				

Service Package:	Railroad Crossing Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	rail crossing blockage notification
Flow Description:	Notification that a highway-rail intersection is obstructed and supporting information.				

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	rail crossing status
Flow Description:	Status of the highway-rail intersection equipment including both the current state or mode of operation and the current equipment condition.				

Service Package:	Railroad Crossing Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Wayside Equipment	Flow:	rail crossing blockage notification
Flow Description:	Notification that a highway-rail intersection is obstructed and supporting information.				

Source:	ITS Roadway Equipment	Destination:	Wayside Equipment	Flow:	rail crossing operational status
Flow Description:	Status of the highway-rail grade crossing equipment including both the current state or mode of operation and the current equipment condition.				

Service Package:	Railroad Crossing Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	Connected Vehicle Roadside Equipment	Flow:	rail crossing application info
Flow Description:	Rail crossing and device configuration data and warning parameters and thresholds. This flow also supports remote control of the application so the application can be taken offline, reset, or restarted.				

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	rail crossing control data
Flow Description:	Data required for HRI information transmitted at railroad grade crossings and within railroad operations.				

Service Package:	Railroad Crossing Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	rail crossing request
Flow Description:	A request for highway-rail intersection status or a specific control request intended to modify HRI operation.				

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	intersection infringement info
Flow Description:	Vehicle path information sent by a vehicle that is performing an unpermitted movement at an intersection such as a stop sign violation or running a red light. Tthis also includes information about possible conflicts with other road users in the vehicle's				

Service Package:	Railroad Crossing Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle location and motion
Flow Description:	Data describing the vehicle's location in three dimensions, heading, speed, acceleration, braking status, and size.				

Source:	Wayside Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	arriving train information
Flow Description:	Information for a train approaching a highway-rail intersection that may include direction and allow calculation of approximate arrival time and closure duration.				

Service Package:	Railroad Crossing Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Wayside Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	track status
Flow Description:	Current status of the wayside equipment and notification of an arriving train.				

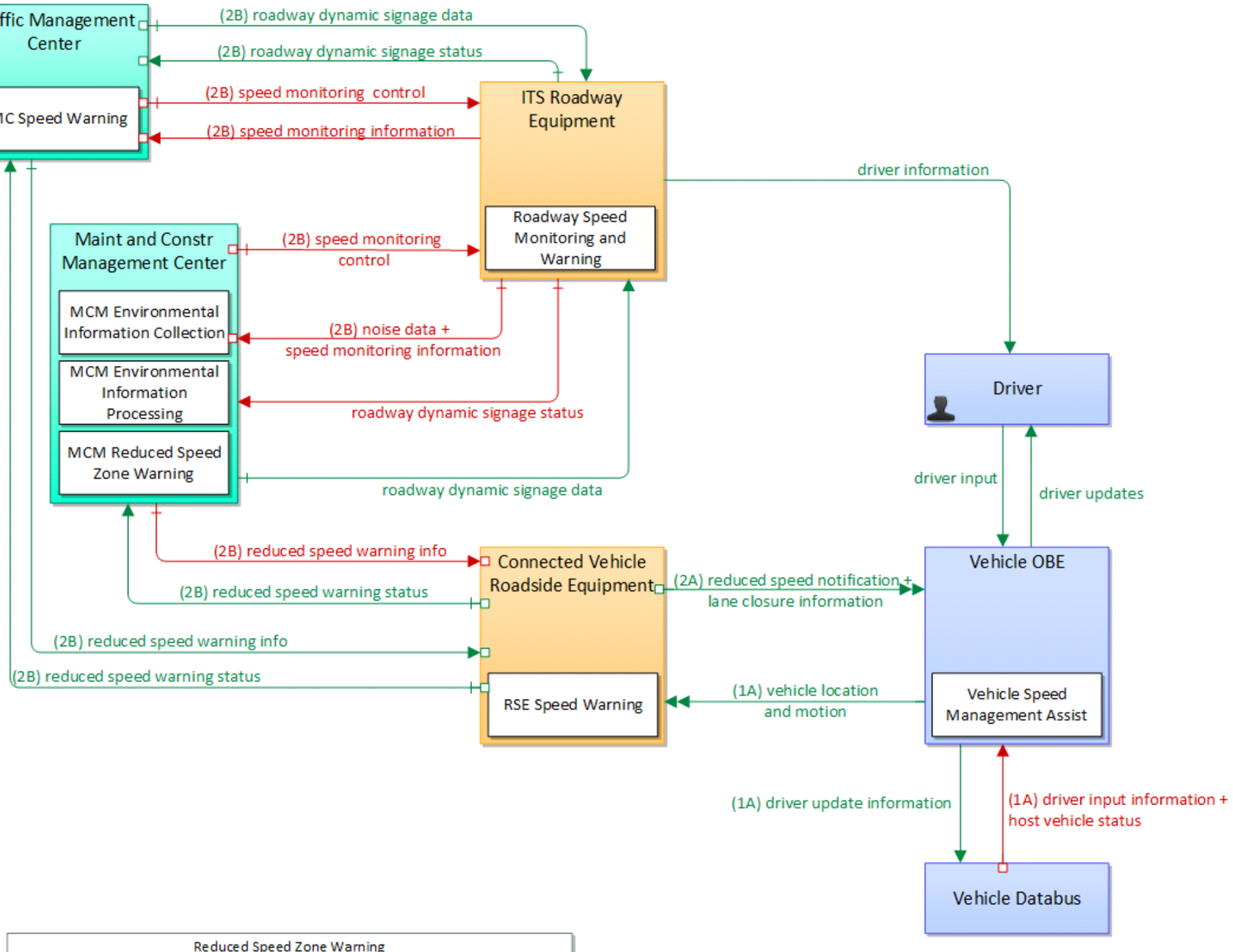
Source:	Wayside Equipment	Destination:	ITS Roadway Equipment	Flow:	arriving train information
Flow Description:	Information for a train approaching a highway-rail intersection that may include direction and allow calculation of approximate arrival time and closure duration.				

Service Package:	Railroad Crossing Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Wayside Equipment	Destination:	ITS Roadway Equipment	Flow:	track status
Flow Description:	Current status of the wayside equipment and notification of an arriving train.				

Service Package:	Reduced Speed Zone Warning / Lane Closure	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	30

The Reduced Speed Zone Warning / Lane Closure(RSZW/LC) application provides connected vehicles which are approaching a reduced speed zone with information on the zone's posted speed limit and/or if the configuration of the roadway is altered (e.g., lane closures, lane shifts). Reduced speed zones include (but are not be limited to) construction/work zones, school zones, pedestrian crossing areas, and incorporated zones (e.g., rural towns). The RSZW/LC application inside the connected vehicle uses the revised speed limit along with any applicable changed roadside configuration information to determine whether to provide an alert or warning to the driver. Additionally, to provide warnings to non-equipped vehicles, infrastructure equipment measures the speed of the approaching vehicles and if greater than the reduced speed zone posted speed limit will provide warning signage. The application will provide an alert to drivers in advance when aggressive braking is required to reduce to the posted speed limit.



Reduced Speed Zone Warning			
9	Physical	Apr 18, 2017	NAT

Service Package:	Reduced Speed Zone Warning / Lane Closure	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	30

Source:	Connected Vehicle Roadside Equipment	Destination:	Maint and Constr Management Center	Flow:	reduced speed warning status
Flow Description:	Speed warning application status reported by the RSE. This includes current operational state and status of the RSE and a record of measured vehicle speeds and notifications, alerts, and warnings issued.				

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	reduced speed warning status
Flow Description:	Speed warning application status reported by the RSE. This includes current operational state and status of the RSE and a record of measured vehicle speeds and notifications, alerts, and warnings issued.				

Service Package:	Reduced Speed Zone Warning / Lane Closure	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	30

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	lane closure information

Flow Description:	Lane closure information provided to passing vehicles. This flow provides information about roadway configuration changes such as lane closures and shifts.

Solution	JP: F-V Short Range Wireless Data(JP) - F-V Short Range Wireless Downlink Comm (JP)	Solution Issue Score:	15

Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	reduced speed notification

Flow Description:	Reduced speed zone information provided to passing vehicles. This flow provides the reduced speed limit, the location and extent of the reduced speed zone, and associated warning information.

Solution	JP: F-V Short Range Wireless Data(JP) - F-V Short Range Wireless Downlink Comm (JP)	Solution Issue Score:	15

Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Service Package:	Reduced Speed Zone Warning / Lane Closure	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	30

Source:	ITS Roadway Equipment	Destination:	Maint and Constr Management Center	Flow:	noise data
Flow Description:	It contains data about noise in the geographic area managed by the System (typically in areas with noise pollution). Sensors that are part of another Function in the Manage Traffic Area will have collected this data.				

Source:	ITS Roadway Equipment	Destination:	Maint and Constr Management Center	Flow:	roadway dynamic signage status
Flow Description:	Current operating status of dynamic message signs.				

Service Package:	Reduced Speed Zone Warning / Lane Closure	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	30

Source:	ITS Roadway Equipment	Destination:	Maint and Constr Management Center	Flow:	speed monitoring information
Flow Description:	System status including current operational state and logged information including measured speeds, warning messages displayed, and violation records.				

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	roadway dynamic signage status
Flow Description:	Current operating status of dynamic message signs.				

Service Package:	Reduced Speed Zone Warning / Lane Closure	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	30

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	speed monitoring information
Flow Description:	System status including current operational state and logged information including measured speeds, warning messages displayed, and violation records.				

Source:	Maint and Constr Management Center	Destination:	Connected Vehicle Roadside Equipment	Flow:	reduced speed warning info
Flow Description:	Roadway configuration data, current speed limits including time of day, week, or season speed limits as necessary, and warning parameters and thresholds. This flow also supports remote control of the application so the application can be taken offline, r				

Service Package:	Reduced Speed Zone Warning / Lane Closure	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	30

Source:	Maint and Constr Management Center	Destination:	ITS Roadway Equipment	Flow:	roadway dynamic signage data
Flow Description:	Information used to initialize, configure, and control dynamic message signs. This flow can provide message content and delivery attributes, local message store maintenance requests, control mode commands, status queries, and all other commands and associ				

Source:	Maint and Constr Management Center	Destination:	ITS Roadway Equipment	Flow:	speed monitoring control
Flow Description:	Information used to configure and control automated speed monitoring, speed warning, and speed enforcement systems.				

Service Package:	Reduced Speed Zone Warning / Lane Closure	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	30

Source:	Traffic Management Center	Destination:	Connected Vehicle Roadside Equipment	Flow:	reduced speed warning info
Flow Description:	Roadway configuration data, current speed limits including time of day, week, or season speed limits as necessary, and warning parameters and thresholds. This flow also supports remote control of the application so the application can be taken offline, r				

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	roadway dynamic signage data
Flow Description:	Information used to initialize, configure, and control dynamic message signs. This flow can provide message content and delivery attributes, local message store maintenance requests, control mode commands, status queries, and all other commands and associ				

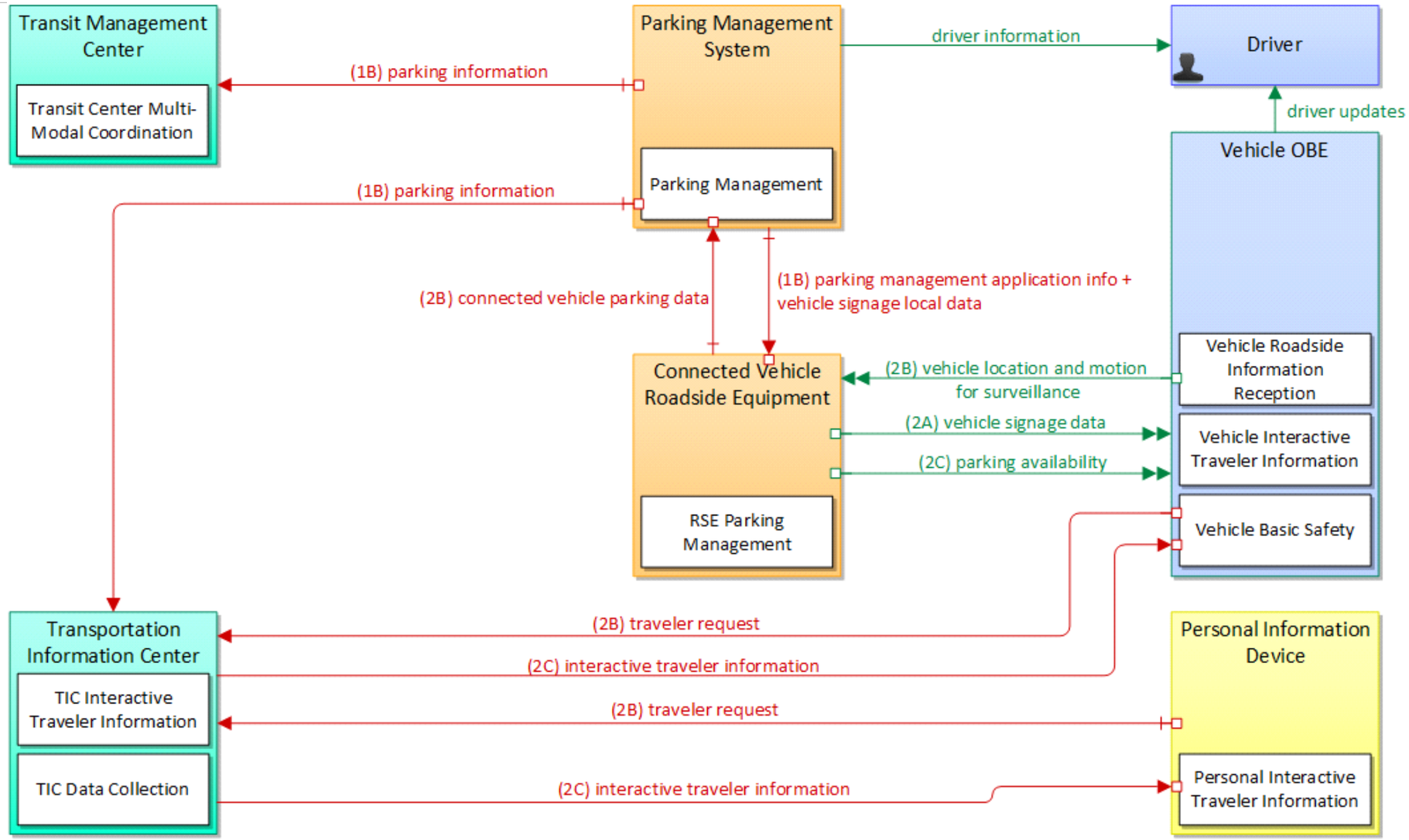
Service Package:	Reduced Speed Zone Warning / Lane Closure	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	30

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	speed monitoring control
Flow Description:	Information used to configure and control automated speed monitoring, speed warning, and speed enforcement systems.				

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle location and motion
Flow Description:	Data describing the vehicle's location in three dimensions, heading, speed, acceleration, braking status, and size.				

Service Package:	Smart Park and Ride System	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

The Smart Park and Ride application provides real-time information on Park and Ride capacity and supports traveler's decision-making on where best to park and make use of transit alternatives. The application uses connected vehicles to monitor in real time the occupancy of parking spaces and provide the information to travelers via smartphones and to connected vehicles.



Smart Park and Ride System			
6	Physical	Jul 7, 2015	NAT

Service Package:	Smart Park and Ride System	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Parking Management System	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle signage local data
Flow Description:	Information provided by adjacent field equipment to support in-vehicle signing of dynamic information that is currently being displayed to passing drivers. This includes the dynamic information (e.g., grade crossing information, local traffic and road co				

Source:	Parking Management System	Destination:	Transit Management Center	Flow:	parking information
Flow Description:	General parking information and status, including current parking availability.				

Service Package:	Smart Park and Ride System	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Parking Management System	Destination:	Transportation Information Center	Flow:	parking information
Flow Description:	General parking information and status, including current parking availability.				

Source:	Personal Information Device	Destination:	Transportation Information Center	Flow:	traveler request
Flow Description:	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				

Service Package:	Smart Park and Ride System	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Transportation Information Center	Destination:	Personal Information Device	Flow:	interactive traveler information
Flow Description:	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-relat				

Source:	Transportation Information Center	Destination:	Vehicle OBE	Flow:	interactive traveler information
Flow Description:	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-relat				

Service Package:	Smart Park and Ride System	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle location and motion for surveillance
Flow Description:	Data describing the vehicle's location in three dimensions, heading, speed, acceleration, braking status, and size. This flow represents monitoring of basic safety data ('vehicle location and motion') broadcast by passing connected vehicles for use in ve				

Source:	Vehicle OBE	Destination:	Transportation Information Center	Flow:	traveler request
Flow Description:	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				

Service Package:	Smart Park and Ride System	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Parking Management System	Flow:	connected vehicle parking data
Flow Description:	Current, aggregate parking data collected from connected vehicles that can be used to monitor parking space usage and availability. This flow identifies spaces that are occupied by connected vehicles.				

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	parking availability
Flow Description:	Information on available parking. This flow identifies available spaces with associated information about parking restrictions and location for each available space. Specifically includes information on parking for commercial vehicles, coaches/buses, an				

Service Package:	Smart Park and Ride System	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	vehicle signage data

Flow Description:	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

Solution	JP: F-V Short Range Wireless Data(JP) - F-V Short Range Wireless Downlink Comm (JP)	Solution Issue Score:	15

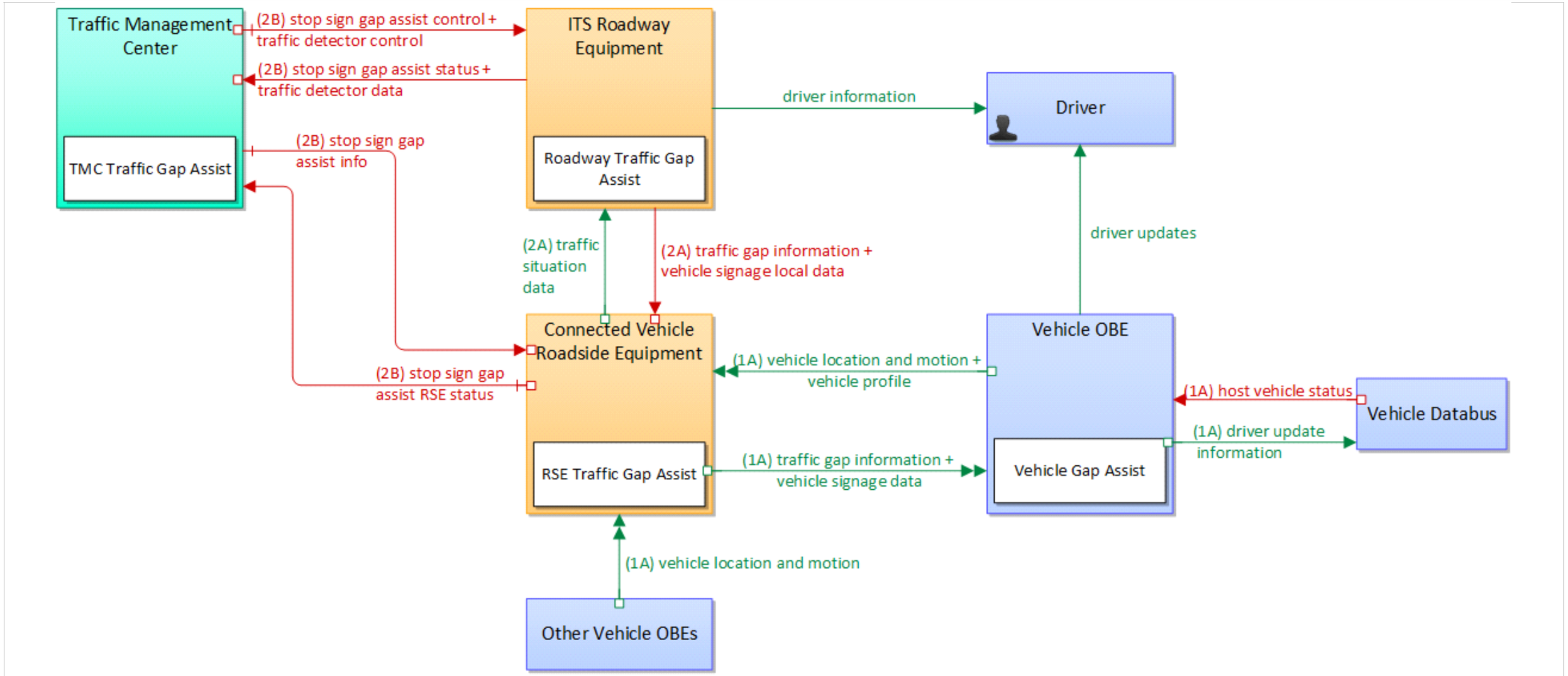
Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Source:	Parking Management System	Destination:	Connected Vehicle Roadside Equipment	Flow:	parking management application info

Flow Description:	Parking management application information including parking lot configuration and status and associated parameters and thresholds that control the algorithms that monitor parking occupancy and the parking information that is delivered. This flow also su

Service Package:	Stop Sign Gap Assist	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

The Stop Sign Gap Assist (SSGA) safety application is intended to improve safety at non-signalized intersections where only the minor road has posted stop signs. This application includes both onboard (for connected vehicles) and roadside signage warning systems (for non-equipped vehicles). The application will help drivers on a minor road stopped at an intersection understand the state of activities associated with that intersection by providing a warning of unsafe gaps on the major road. The SSGA application collects all available sensor information (major road, minor road, and median sensors) data and computes the dynamic state of the intersection in order to issue appropriate warnings and alerts.



Stop Sign Gap Assist			
5	Physical	Sep 30, 2017	NAT

Service Package:	Stop Sign Gap Assist	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	ITS Roadway Equipment	Flow:	traffic situation data
Flow Description:	Current, aggregate traffic data collected from connected vehicles that can be used to supplement or replace information collected by roadside traffic detectors. It includes raw and/or processed reported vehicle speeds, counts, and other derived measures.				

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	stop sign gap assist RSE status
Flow Description:	Stop sign gap assist application status. This includes current operational state and status of the RSE and a log of stop sign gap assist events including alerts and warnings issued.				

Service Package:	Stop Sign Gap Assist	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	traffic gap information
Flow Description:	Measured gap to the next approaching vehicle per lane and direction of travel				

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	vehicle signage data
Flow Description:	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				

Solution	JP: F-V Short Range Wireless Data(JP) - F-V Short Range Wireless Downlink Comm (JP)	Solution Issue Score:	15

Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Service Package:	Stop Sign Gap Assist	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	traffic gap information
Flow Description:	Measured gap to the next approaching vehicle per lane and direction of travel				

Source:	ITS Roadway Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle signage local data
Flow Description:	Information provided by adjacent field equipment to support in-vehicle signing of dynamic information that is currently being displayed to passing drivers. This includes the dynamic information (e.g., grade crossing information, local traffic and road co				

Service Package:	Stop Sign Gap Assist	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	stop sign gap assist status
Flow Description:	The current operational state and status of the field controller, sensors, and signs that support the stop sign gap assist application.				

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	traffic detector data
Flow Description:	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 opera				

Service Package:	Stop Sign Gap Assist	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Other Vehicle OBEs	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle location and motion
Flow Description:	Data describing the vehicle's location in three dimensions, heading, speed, acceleration, braking status, and size.				

Source:	Traffic Management Center	Destination:	Connected Vehicle Roadside Equipment	Flow:	stop sign gap assist info
Flow Description:	Intersection and device configuration data and warning parameters and thresholds for the stop sign gap assist application. This flow also supports remote control of the application so the application can be taken offline, reset, or restarted.				

Service Package:	Stop Sign Gap Assist	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	stop sign gap assist control
Flow Description:	Configuration and control of detectors that monitor traffic on the major road and signs that provide stop sign gap assist alerts and warnings to vehicles on the minor road.				

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	traffic detector control
Flow Description:	Information used to configure and control traffic sensor systems.				

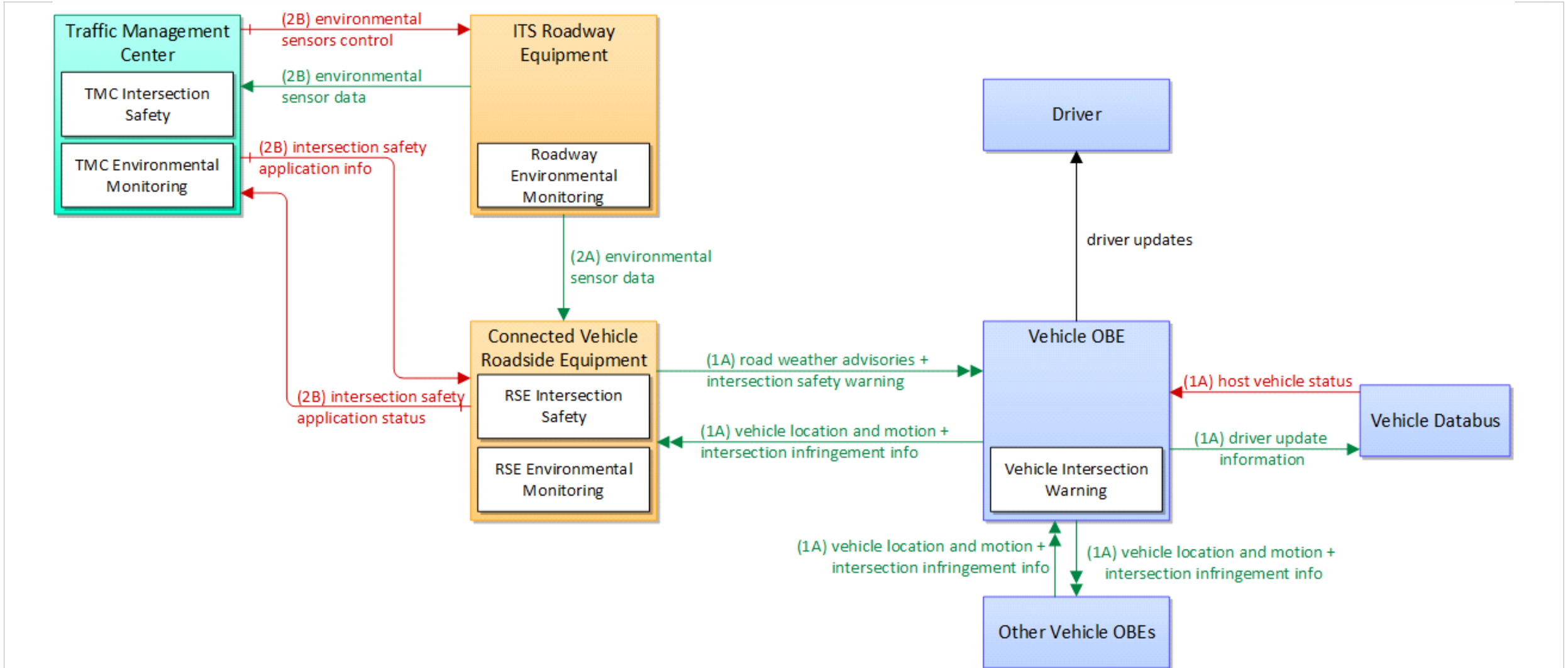
Service Package:	Stop Sign Gap Assist	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle location and motion
Flow Description:	Data describing the vehicle's location in three dimensions, heading, speed, acceleration, braking status, and size.				

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle profile
Flow Description:	Information about a vehicle such as vehicle make and model, fuel type, engine type, average emissions, average fuel consumption, passenger occupancy, or other data that can be used to classify vehicle eligibility for access to specific lanes, road segment				

Service Package:	Stop Sign Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

The Stop Sign Violation Warning (SSVW) safety application is intended to improve safety for at unsignalized intersections with posted stop signs by providing warnings to the driver approaching an unsignalized intersection. The application is designed to warn drivers that they may violate an upcoming stop sign based on their speeds and distance to the stop sign. In order for the application to operate the vehicle needs to have detailed geometric information about the intersection, which is used by the onboard portion of the application to determine if a stop sign violation is likely and to provide the driver a warning about the potential stop sign violation. The geometric information could be obtained from an RSE at the intersection, or obtained from an RSE at some earlier point in the vehicles trip. If the information is received from an RSE at the intersection then it could be augmented with road surface information or other weather-related data.



Stop Sign Violation Warning			
7	Physical	Jul 20, 2015	NAT

Service Package:	Stop Sign Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Traffic Management Center	Flow:	intersection safety application status
Flow Description:	Infrastructure safety application status reported by the RSE. This includes current operational state and status of the RSE and a record of intersection safety issues identified and alerts and warnings issued.				

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	intersection safety warning
Flow Description:	A warning of an imminent unsafe vehicle infringement at an intersection that may endanger other vehicles or pedestrians. This allows vehicles approaching the intersection to be warned in the event of an imminent red light or stop sign violation or potent				

Service Package:	Stop Sign Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	road weather advisories
Flow Description:	Segment-specific weather and road conditions including real-time advisories of deteriorating road and weather conditions, medium-term advisories for the next 2-12 hours, and long-term advisories more than 12 hours into the future. The advisories may incl				

Solution	JP: F-V Short Range Wireless Data(JP) - F-V Short Range Wireless Downlink Comm (JP)	Solution Issue Score:	15

Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Source:	ITS Roadway Equipment	Destination:	Connected Vehicle Roadside Equipment	Flow:	environmental sensor data
Flow Description:	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 en				

Service Package:	Stop Sign Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	ITS Roadway Equipment	Destination:	Traffic Management Center	Flow:	environmental sensor data
Flow Description:	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 en				

Source:	Other Vehicle OBEs	Destination:	Vehicle OBE	Flow:	intersection infringement info
Flow Description:	Vehicle path information sent by a vehicle that is performing an unpermitted movement at an intersection such as a stop sign violation or running a red light. Tthis also includes information about possible conflicts with other road users in the vehicle's				

Service Package:	Stop Sign Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Other Vehicle OBEs	Destination:	Vehicle OBE	Flow:	vehicle location and motion
Flow Description:	Data describing the vehicle's location in three dimensions, heading, speed, acceleration, braking status, and size.				

Source:	Traffic Management Center	Destination:	Connected Vehicle Roadside Equipment	Flow:	intersection safety application info
Flow Description:	Intersection and device configuration data and warning parameters and thresholds. This flow also supports remote control of the application so the application can be taken offline, reset, or restarted.				

Service Package:	Stop Sign Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Traffic Management Center	Destination:	ITS Roadway Equipment	Flow:	environmental sensors control
Flow Description:	Data used to configure and control environmental sensors.				

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	intersection infringement info
Flow Description:	Vehicle path information sent by a vehicle that is performing an unpermitted movement at an intersection such as a stop sign violation or running a red light. Tthis also includes information about possible conflicts with other road users in the vehicle's				

Service Package:	Stop Sign Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle location and motion
Flow Description:	Data describing the vehicle's location in three dimensions, heading, speed, acceleration, braking status, and size.				

Source:	Vehicle OBE	Destination:	Other Vehicle OBEs	Flow:	intersection infringement info
Flow Description:	Vehicle path information sent by a vehicle that is performing an unpermitted movement at an intersection such as a stop sign violation or running a red light. Tthis also includes information about possible conflicts with other road users in the vehicle's				

Service Package:	Stop Sign Violation Warning	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Vehicle OBE	Destination:	Other Vehicle OBEs	Flow:	vehicle location and motion
Flow Description:	Data describing the vehicle's location in three dimensions, heading, speed, acceleration, braking status, and size.				

Service Package:	Traveler Information- Smart Parking	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

The Traveler Information -Smart Parking application provides users with real-time location, availability, type (e.g., street, garage, AFV only), and the price of parking. The parking information can be provided via DSRC or wide area communications. The application reduces time required for drivers to search for a parking space, which can have eco benefits such as reducing emissions. The application also supports dynamic pricing of parking based on factors such as demand, emissions, or vehicle type.

Service Package:	Traveler Information- Smart Parking	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Parking Management System	Flow:	connected vehicle parking data
Flow Description:	Current, aggregate parking data collected from connected vehicles that can be used to monitor parking space usage and availability. This flow identifies spaces that are occupied by connected vehicles.				

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	parking availability
Flow Description:	Information on available parking. This flow identifies available spaces with associated information about parking restrictions and location for each available space. Specifically includes information on parking for commercial vehicles, coaches/buses, an				

Service Package:	Traveler Information- Smart Parking	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Connected Vehicle Roadside Equipment	Destination:	Vehicle OBE	Flow:	vehicle signage data
Flow Description:	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				

Solution	JP: F-V Short Range Wireless Data(JP) - F-V Short Range Wireless Downlink Comm (JP)	Solution Issue Score:	15

Issue	Issue Description	Assignment Notes	Severity
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Application-level authentication not provided	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	It is unclear what security is provided with this link	Medium
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	SIRI does not currently provide application level authentication.	Medium

Source:	Other Transportation Information Centers	Destination:	Transportation Information Center	Flow:	parking information
Flow Description:	General parking information and status, including current parking availability.				

Service Package:	Traveler Information- Smart Parking	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Parking Management System	Destination:	Connected Vehicle Roadside Equipment	Flow:	parking management application info
Flow Description:	Parking management application information including parking lot configuration and status and associated parameters and thresholds that control the algorithms that monitor parking occupancy and the parking information that is delivered. This flow also su				

Source:	Parking Management System	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle signage local data
Flow Description:	Information provided by adjacent field equipment to support in-vehicle signing of dynamic information that is currently being displayed to passing drivers. This includes the dynamic information (e.g., grade crossing information, local traffic and road co				

Service Package:	Traveler Information- Smart Parking	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Parking Management System	Destination:	Traffic Management Center	Flow:	parking information
Flow Description:	General parking information and status, including current parking availability.				

Source:	Parking Management System	Destination:	Transportation Information Center	Flow:	parking information
Flow Description:	General parking information and status, including current parking availability.				

Service Package:	Traveler Information- Smart Parking	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Personal Information Device	Destination:	Transportation Information Center	Flow:	traveler request
Flow Description:	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				

Source:	Transportation Information Center	Destination:	Other Transportation Information Centers	Flow:	parking information
Flow Description:	General parking information and status, including current parking availability.				

Service Package:	Traveler Information- Smart Parking	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Transportation Information Center	Destination:	Personal Information Device	Flow:	interactive traveler information
Flow Description:	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-relat				

Source:	Transportation Information Center	Destination:	Vehicle OBE	Flow:	interactive traveler information
Flow Description:	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-relat				

Service Package:	Traveler Information- Smart Parking	Deployment Timeframe:	Day 1.5	Best (minimum) Issue Score	15

Source:	Vehicle OBE	Destination:	Connected Vehicle Roadside Equipment	Flow:	vehicle location and motion for surveillance
Flow Description:	Data describing the vehicle's location in three dimensions, heading, speed, acceleration, braking status, and size. This flow represents monitoring of basic safety data ('vehicle location and motion') broadcast by passing connected vehicles for use in ve				

Source:	Vehicle OBE	Destination:	Transportation Information Center	Flow:	traveler request
Flow Description:	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				