



# Standards Gap Analysis for Cooperative Intelligent Transportation Systems

## Results: Solution Perspective: European Union

Document HTG7-3-1-EU

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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.<sup>1</sup>

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<sup>1</sup> 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](https://www.iso.org/sites/ConsumersStandards/1_standards.html); Wikipedia: [https://en.wikipedia.org/wiki/Technical\\_standard](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**<sup>2</sup>. 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).<sup>3</sup>

## 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)**<sup>4</sup> 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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<sup>2</sup> 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.

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

<sup>4</sup> 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**<sup>5</sup>. 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.

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<sup>5</sup> 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<sup>6</sup>).
  - **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<sup>6</sup>).
- **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

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<sup>6</sup> 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: Solution Perspective: European Union** (HTG7-3-1-EU), 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 solution perspective for the European Union. It provides a table of HARTS analysis results structured to provide insight to project teams within the European Union who are tasked with assessing, designing, and deploying standards-based solutions when deploying new, or augmenting existing, service packages.

This detailed report is intended to assist these teams in the implementation of specific solutions. This guidance provides an awareness of the issues and associated risks associated with each potential solution. Once a project team is aware of the issues, they will be better prepared to develop appropriate and effective workarounds.

To assist this type of project team, the results in this detailed report are organised by solution, listing each issue/proposed resolution pair that is applicable to the solution. Under each issue/proposed resolution pair that is applicable to the solution, the detailed report then alphabetically lists each **information triple** (**source**, **destination** and information flow) that uses the solution and is associated with the indicated issue/ proposed resolution pairs. This is summarised in Figure 1.

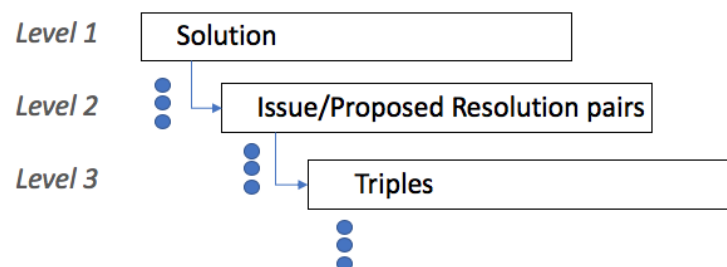


Figure 1: Solution Perspective Overview

### 3. Report Structure

As shown 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.

<i>Level 1</i>	<b>Solution Name:</b>	Text	<b>Number of Issues:</b>	5	<b>Total Issue Severity:</b>	54
	text					
<i>Level 2</i>	<b>Issue</b>	<b>Issue Description</b>	<b>Issue Severity</b>	<b>Proposed Resolution</b>	<b>Resolution Description</b>	<b>Timeframe</b>
	text	text	Ultra	text	text	Urgent
<i>Level 3</i>	Information Triples using this solution and affected by this issue that would be addressed by this Proposed Resolution					
	Source	Destination	Flow			
	Source 1	Destination 1	Flow 1			
	Source 1	Destination 2	Flow 1			
	Source 2	Destination 5	Flow 23			
	Source 3	Destination 9	Flow 45			

**Figure 2: Solution Perspective 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: Solution Perspective Report Field Descriptions

Report Level	Field Information			Sort Criteria		
	Title	Description	Value Range	Order	Measure	Direction
1	<b>Solution Name</b>	The name of the solution expressed as a hyphenated concatenation of the HARTS <i>data profile</i> and the HARTS <i>communication profile</i> that collectively define the solution.	ASCII <sup>7</sup>	1	Alphabetic	↓
	<b>Number of Issues</b>	A count of the issues that have been assigned to the solution.	Non-negative integer	–	–	–
	<b>Total Issue Severity</b>	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	–	–	–
	<b>Solution Description</b>	A summary description of the information flow. NOTE: Only the description text is displayed; the title of this field is not shown.	ASCII	–	–	–
2	<b>Issue</b>	The name of the issue, which will correspond to one of the 43 defined issue types.	ASCII; See HTG7-5 for a complete list of issue types.	3	Alphabetic	↓
	<b>Issue Description</b>	A textual description of the issue type.	ASCII	–	–	–

<sup>7</sup> ASCII (American Standard Code for Information Exchange)

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Report Level	Field Information			Sort Criteria		
	Title	Description	Value Range	Order	Measure	Direction
	<b>Issue Severity</b>	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)	2	List Order	↓
	<b>Proposed Resolution</b>	The name of the proposed resolution, which will correspond to one of the 112 defined proposed resolutions.	ASCII	–	–	–
	<b>Resolution Description</b>	A description of the proposed resolution.	ASCII	–	–	–
	<b>Timeframe</b>	The timeframe in which the proposed resolution needs to be addressed in order to eliminate, or mitigate, the associated issues(s) which will facilitate wide-scale deployments of impacted solutions, information triples and service packages.	Ordered List (Urgent, Near-Term, Medium-Term, Future)	–	–	–
	<b>Applicability</b>	The HARTS region or regions in which the proposed resolution is relevant.	Multiple from the following list (AU, EU, JP, US)	–	–	–
3	<b>Source</b>	The HARTS <b>physical object</b> that is the source of the information in the flow. The combination of the source, destination and the information flow constitute the "information triple".	ASCII	4	Alphabetic	↓

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Report Level	Field Information			Sort Criteria		
	Title	Description	Value Range	Order	Measure	Direction
	<b>Destination</b>	The HARTS physical object that is the destination of the information in the flow. The combination of the source, destination and the information flow constitute the “information triple”.	ASCII	5	Alphabetic	↓
	<b>FlowName</b>	Name for the information that is exchanged between two physical objects in the <i>physical view</i> of HARTS. 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 constitute the “information triple”.	ASCII	6	Alphabetic	↓

## 4. Report Content

The table of results is shown below.

*[Remainder of page intentionally left blank]*

Solution Name:	(None-Data) - BTP/GeoNetworking/G5	Number of Issues:	6	Total Issue Severity:	45
Solution Name:	(None-Data) - BTP/GeoNetworking/G5	Number of Issues:	6	Total Issue Severity:	45

This solution is used within the E.U., and Australia. It combines standards associated with (None-Data) with those for V-X: BTP/GeoNetworking/G5. The (None-Data) standards include an unspecified set of standards at the upper layers. The V-X: BTP/GeoNetworking/G5 standards include lower-layer standards that support broadcast, near constant, low latency vehicle-to-vehicle and vehicle-to-infrastructure communications using the ETSI GeoNetworking Bundle over the 5.9GHz spectrum.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Connected Vehicle Roadside Equipment	Personal Information Device	pedestrian safety information
Connected Vehicle Roadside Equipment	Vehicle OBE	traffic gap information
Connected Vehicle Roadside Equipment	Vehicle OBE	vehicle payment request
Other Vehicle OBEs	Vehicle OBE	intersection infringement info
Personal Information Device	Connected Vehicle Roadside Equipment	personal location
Personal Information Device	Vehicle OBE	personal location
Vehicle OBE	Connected Vehicle Roadside Equipment	intersection infringement info
Vehicle OBE	Other Vehicle OBEs	intersection infringement info
Vehicle OBE	Other Vehicle OBEs	vehicle road information
Vehicle OBE	Other Vehicle OBEs	vehicle travel time data

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Intersection infringement	Develop an internationally acceptable ITS application specification that defines the rules for providing intersection infringement information within a local environment.	Urgent	United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Other Vehicle OBEs	Vehicle OBE	intersection infringement info
Vehicle OBE	Connected Vehicle Roadside Equipment	intersection infringement info
Vehicle OBE	Other Vehicle OBEs	intersection infringement info



Solution Name:		(None-Data) - BTP/GeoNetworking/G5				Number of Issues:	6	Total Issue Severity:	45
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry and associated regulations and restrictions over mobile Internet from a centre to user devices (e.g., a vehicle or personal information device).				Urgent	Australia, European Union, United States, Japan
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Vehicle OBE		Other Vehicle OBEs		vehicle road information					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Personal Information Device		pedestrian safety information					
Connected Vehicle Roadside Equipment		Vehicle OBE		traffic gap information					
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle payment request					
Other Vehicle OBEs		Vehicle OBE		intersection infringement info					
Personal Information Device		Connected Vehicle Roadside Equipment		personal location					
Personal Information Device		Vehicle OBE		personal location					
Vehicle OBE		Connected Vehicle Roadside Equipment		intersection infringement info					
Vehicle OBE		Other Vehicle OBEs		intersection infringement info					
Vehicle OBE		Other Vehicle OBEs		vehicle road information					
Vehicle OBE		Other Vehicle OBEs		vehicle travel time data					

Solution Name:		(None-Data) - BTP/GeoNetworking/G5			Number of Issues:	6	Total Issue Severity:	45
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.		Urgent	Australia, European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Connected Vehicle Roadside Equipment		Personal Information Device		pedestrian safety information				
Connected Vehicle Roadside Equipment		Vehicle OBE		traffic gap information				
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle payment request				
Other Vehicle OBEs		Vehicle OBE		intersection infringement info				
Personal Information Device		Connected Vehicle Roadside Equipment		personal location				
Personal Information Device		Vehicle OBE		personal location				
Vehicle OBE		Connected Vehicle Roadside Equipment		intersection infringement info				
Vehicle OBE		Other Vehicle OBEs		intersection infringement info				
Vehicle OBE		Other Vehicle OBEs		vehicle road information				
Vehicle OBE		Other Vehicle OBEs		vehicle travel time data				

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability
Protocol features partly not applicable in the given context	A feature of the protocol is not fully applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9 GHz channels.	Low	V-L: GeoNetworking	Determine how to implement GeoNetworking without unduly flooding the network and, if feasible, prove out concept.		Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution							
Source		Destination		Flow Name			
Connected Vehicle Roadside Equipment		Personal Information Device		pedestrian safety information			
Connected Vehicle Roadside Equipment		Vehicle OBE		traffic gap information			
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle payment request			
Other Vehicle OBEs		Vehicle OBE		intersection infringement info			
Personal Information Device		Connected Vehicle Roadside Equipment		personal location			
Personal Information Device		Vehicle OBE		personal location			
Vehicle OBE		Connected Vehicle Roadside Equipment		intersection infringement info			
Vehicle OBE		Other Vehicle OBEs		intersection infringement info			
Vehicle OBE		Other Vehicle OBEs		vehicle road information			
Vehicle OBE		Other Vehicle OBEs		vehicle travel time data			

Solution Name:		(None-Data) - BTP/GeoNetworking/G5				Number of Issues:	6	Total Issue Severity:	45
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Intersection infringement	Develop an internationally acceptable ITS application specification that defines the rules for providing intersection infringement information within a local environment.				Urgent	United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Other Vehicle OBEs		Vehicle OBE		intersection infringement info					
Vehicle OBE		Connected Vehicle Roadside Equipment		intersection infringement info					
Vehicle OBE		Other Vehicle OBEs		intersection infringement info					

Solution Name:		(None-Data) - DATEX Messaging TCP			Number of Issues:	2	Total Issue Severity:	35
This solution is used within the European Union. It combines standards associated with (None-Data) with those for C-C: DATEX Messaging TCP. The (None-Data) standards include an unspecified set of standards at the upper layers. The C-C: DATEX Messaging TCP standards include lower-layer standards that support partially secure communications between two centres as commonly used in Europe.								

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	<p>Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.</p> <p>Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).</p>	Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Authorizing Center		Center		permission request received		
Authorizing Center		Other Authorizing Centers		permission request coordination		
Cellular Communications Provider		Traffic Management Center		comm-derived travel time data		
Cellular Communications Provider		Transportation Information Center		comm-derived travel time data		
Center		Authorizing Center		permission request		
Center		Authorizing Center		permission update request		
Center		Maint and Constr Management Center		equipment maintenance request		
Center		Map Update System		map update notification		
Center		Service Monitor System		service maintenance request		
Center		Service Monitor System		system monitoring		
Data Distribution System		Service Monitor System		service maintenance request		
Data Distribution System		Service Monitor System		support system status		
Emergency Management Center		Traffic Management Center		emergency traffic control request		
Emissions Management Center		Transportation Information Center		air quality information		
Fleet and Freight Management Center		Intermodal Terminal		freight transportation status		
Fleet and Freight Management Center		Transportation Information Center		route request		
Intermodal Terminal		Fleet and Freight Management Center		freight transportation status		

Solution Name:	(None-Data) - DATEX Messaging TCP	Number of Issues:	2	Total Issue Severity:	35
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Intermodal Terminal	Traffic Management Center	intermodal freight event information
Maint and Constr Management Center	Map Update System	current infrastructure restrictions
Map Update System	Center	map updates
Map Update System	Other Map Update Systems	map update coordination
Other Authorizing Centers	Authorizing Center	permission request coordination
Other Map Update Systems	Map Update System	map update coordination
Other Transportation Information Centers	Transportation Information Center	multimodal information
Other Transportation Information Centers	Transportation Information Center	transit service information
Parking Management System	Map Update System	parking facility geometry
Privacy Protection Gateway	Center	protected location and address flow
Service Monitor System	Center	RSE fault data
Service Monitor System	Center	service maintenance status
Service Monitor System	Data Distribution System	service maintenance status
Service Monitor System	Maint and Constr Management Center	RSE fault data
Service Monitor System	Wide Area Information Disseminator	service maintenance status
Traffic Management Center	Emergency Management Center	emergency traffic control information
Traffic Management Center	Intermodal Terminal	intermodal freight traffic confirmation
Traffic Management Center	Map Update System	map update notification
Traffic Regulatory Authority	Transportation Information Center	traffic-related regulations
Transportation Information Center	Fleet and Freight Management Center	route plan
Transportation Information Center	Media	traveler information for media
Transportation Information Center	Other Transportation Information Centers	multimodal information
Transportation Information Center	Other Transportation Information Centers	transit service information
Transportation Information Center	Wide Area Information Disseminator	traffic-related regulations
Transportation Information Center	Wide Area Information Disseminator	traveler information for media
Wide Area Information Disseminator	Service Monitor System	service maintenance request
Wide Area Information Disseminator	Service Monitor System	support system status

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: System monitoring	Develop an internationally acceptable ITS application specification for the Service Monitor System to monitor other centers and support systems and to report issues.	Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Center		Service Monitor System		system monitoring		
Data Distribution System		Service Monitor System		support system status		
Wide Area Information Disseminator		Service Monitor System		support system status		

Solution Name:		(None-Data) - DATEX Messaging TCP				Number of Issues:	2	Total Issue Severity:	35											
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability												
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: EU emergency traffic control	Update DATEX to support the provision of emergency traffic control information with a complete application specification.			Near-term	Australia, European Union												
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Emergency Management Center</td><td>Traffic Management Center</td><td>emergency traffic control request</td></tr><tr><td>Traffic Management Center</td><td>Emergency Management Center</td><td>emergency traffic control information</td></tr></table>									Source	Destination	Flow Name	Emergency Management Center	Traffic Management Center	emergency traffic control request	Traffic Management Center	Emergency Management Center	emergency traffic control information			
Source	Destination	Flow Name																		
Emergency Management Center	Traffic Management Center	emergency traffic control request																		
Traffic Management Center	Emergency Management Center	emergency traffic control information																		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability												
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Core authorization - coordination among centres	Develop an internationally acceptable standard for the user permission request coordination information triples contained within the Core Authorization Service Package.			Near-term	Australia, European Union, United States												
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Authorizing Center</td><td>Other Authorizing Centers</td><td>permission request coordination</td></tr><tr><td>Other Authorizing Centers</td><td>Authorizing Center</td><td>permission request coordination</td></tr></table>									Source	Destination	Flow Name	Authorizing Center	Other Authorizing Centers	permission request coordination	Other Authorizing Centers	Authorizing Center	permission request coordination			
Source	Destination	Flow Name																		
Authorizing Center	Other Authorizing Centers	permission request coordination																		
Other Authorizing Centers	Authorizing Center	permission request coordination																		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability												
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Core authorization - base services	Develop an internationally acceptable standard for the user permission sets, permission request, permission update request, permission request received, and device identification information triples contained within the Core Authorization Service Package.			Urgent	Australia, European Union, United States												
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Authorizing Center</td><td>Center</td><td>permission request received</td></tr><tr><td>Center</td><td>Authorizing Center</td><td>permission request</td></tr><tr><td>Center</td><td>Authorizing Center</td><td>permission update request</td></tr></table>									Source	Destination	Flow Name	Authorizing Center	Center	permission request received	Center	Authorizing Center	permission request	Center	Authorizing Center	permission update request
Source	Destination	Flow Name																		
Authorizing Center	Center	permission request received																		
Center	Authorizing Center	permission request																		
Center	Authorizing Center	permission update request																		

Solution Name:		(None-Data) - DATEX Messaging TCP				Number of Issues:	2	Total Issue Severity:	35
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: Equipment maintenance coordination	Develop an internationally acceptable ITS application specification for C-C exchange of equipment maintenance and status information				Near-term	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Center		Maint and Constr Management Center		equipment maintenance request					
Center		Service Monitor System		service maintenance request					
Data Distribution System		Service Monitor System		service maintenance request					
Service Monitor System		Center		RSE fault data					
Service Monitor System		Center		service maintenance status					
Service Monitor System		Data Distribution System		service maintenance status					
Service Monitor System		Maint and Constr Management Center		RSE fault data					
Service Monitor System		Wide Area Information Disseminator		service maintenance status					
Wide Area Information Disseminator		Service Monitor System		service maintenance request					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for updating maps, roadway geometry, and intersection geometry among centres (e.g., between a Map Update System and a centre).				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Center		Map Update System		map update notification					
Maint and Constr Management Center		Map Update System		current infrastructure restrictions					
Map Update System		Center		map updates					
Map Update System		Other Map Update Systems		map update coordination					
Other Map Update Systems		Map Update System		map update coordination					
Parking Management System		Map Update System		parking facility geometry					
Traffic Management Center		Map Update System		map update notification					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Private location and address	Develop an internationally acceptable ITS application specification that defines the operation of a Privacy Protection Gateway.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Privacy Protection Gateway		Center		protected location and address flow					

Solution Name:		(None-Data) - DATEX Messaging TCP				Number of Issues:	2	Total Issue Severity:	35
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.		Ultra	Develop standard for electronic distribution of traffic regulations	Develop an internationally acceptable standard to enable the provision and management of electronic traffic regulations to enable proper operation of road users as they cross jurisdictional boundaries.			Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source			Destination			Flow Name			
Traffic Regulatory Authority			Transportation Information Center			traffic-related regulations			
Transportation Information Center			Wide Area Information Disseminator			traffic-related regulations			

Solution Name:	(None-Data) - EU-ICIP-C2F	Number of Issues:	5	Total Issue Severity:	54
This solution is used within the European Union. It combines standards associated with (None-Data) with those for I-F: EU-ICIP-C2F. The (None-Data) standards include an unspecified set of standards at the upper layers. The I-F: EU-ICIP-C2F standards include lower-layer placeholder for a European solution currently under development. It is planned that the EU-ICIP will provide guidance as to what lower-layer standards should be used in various environments, but it is not expected to directly specify these layers.					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security not provided	The solution does not provide any significant security and a communications link using this solution is easily hacked.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination		Flow Name		
	Center	Connected Vehicle Roadside Equipment		RSE application information		
	Center	Connected Vehicle Roadside Equipment		RSE application install/upgrade		
	Center	Connected Vehicle Roadside Equipment		RSE control commands		
	Connected Vehicle Roadside Equipment	Center		device identification		
	Connected Vehicle Roadside Equipment	Center		protected location and address flow		
	Connected Vehicle Roadside Equipment	Center		RSE application status		
	Connected Vehicle Roadside Equipment	Data Distribution System		local situation data		
	Connected Vehicle Roadside Equipment	Field Support Equipment		RSE application install/upgrade		
	Connected Vehicle Roadside Equipment	Field Support Equipment		RSE configuration settings		
	Connected Vehicle Roadside Equipment	Field Support Equipment		RSE control commands		
	Connected Vehicle Roadside Equipment	Field Support Equipment		RSE status		
	Connected Vehicle Roadside Equipment	ITS Roadway Equipment		environmental situation data		
	Connected Vehicle Roadside Equipment	ITS Roadway Equipment		intersection infringement info		
	Connected Vehicle Roadside Equipment	ITS Roadway Equipment		pedestrian location information		
	Connected Vehicle Roadside Equipment	ITS Roadway Equipment		roadway dynamic signage data		
	Connected Vehicle Roadside Equipment	ITS Roadway Equipment		signal preemption request		
	Connected Vehicle Roadside Equipment	ITS Roadway Equipment		signal priority service request		
	Connected Vehicle Roadside Equipment	ITS Roadway Equipment		signal service request		
	Connected Vehicle Roadside Equipment	ITS Roadway Equipment		traffic situation data		
	Connected Vehicle Roadside Equipment	Maint and Constr Management Center		reduced speed warning status		



Solution Name:	(None-Data) - EU-ICIP-C2F	Number of Issues:	5	Total Issue Severity:	54
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Connected Vehicle Roadside Equipment	Maint and Constr Management Center	vehicle signage application status
Connected Vehicle Roadside Equipment	Map Update System	vehicle location data for mapping
Connected Vehicle Roadside Equipment	Other Connected Vehicle Roadside Equipment	wrong way vehicle detected
Connected Vehicle Roadside Equipment	Parking Management System	connected vehicle parking data
Connected Vehicle Roadside Equipment	Service Monitor System	RSE status
Connected Vehicle Roadside Equipment	Traffic Management Center	environmental situation data
Connected Vehicle Roadside Equipment	Traffic Management Center	intersection management application status
Connected Vehicle Roadside Equipment	Traffic Management Center	intersection safety application status
Connected Vehicle Roadside Equipment	Traffic Management Center	queue warning application status
Connected Vehicle Roadside Equipment	Traffic Management Center	rail crossing application status
Connected Vehicle Roadside Equipment	Traffic Management Center	reduced speed warning status
Connected Vehicle Roadside Equipment	Traffic Management Center	speed management application status
Connected Vehicle Roadside Equipment	Traffic Management Center	stop sign gap assist RSE status
Connected Vehicle Roadside Equipment	Traffic Management Center	traffic monitoring application status
Connected Vehicle Roadside Equipment	Traffic Management Center	traffic situation data
Connected Vehicle Roadside Equipment	Traffic Management Center	vehicle signage application status
Connected Vehicle Roadside Equipment	Traffic Management Center	work zone application status
Connected Vehicle Roadside Equipment	Transportation Information Center	electric charging station information
Connected Vehicle Roadside Equipment	Transportation Information Center	environmental situation data
Connected Vehicle Roadside Equipment	Transportation Information Center	road weather advisory status
Connected Vehicle Roadside Equipment	Transportation Information Center	traveler information application status
Connected Vehicle Roadside Equipment	Wayside Equipment	rail crossing blockage notification
Connected Vehicle Roadside Equipment	Wayside Equipment	rail crossing operational status
Data Distribution System	Connected Vehicle Roadside Equipment	local traveler information distribution data
Data Distribution System	Connected Vehicle Roadside Equipment	situation data collection parameters
Field Support Equipment	Connected Vehicle Roadside Equipment	RSE application install/upgrade
Field Support Equipment	Connected Vehicle Roadside Equipment	RSE configuration settings
Field Support Equipment	Connected Vehicle Roadside Equipment	RSE control commands
Field Support Equipment	Connected Vehicle Roadside Equipment	RSE status
ITS Roadway Equipment	Center	device identification
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	arriving train information
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	conflict monitor status
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	environmental sensor data
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	intersection control status
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	ITS roadway equipment information
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	pedestrian crossing status

Solution Name:	(None-Data) - EU-ICIP-C2F	Number of Issues:	5	Total Issue Severity:	54
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ITS Roadway Equipment	Connected Vehicle Roadside Equipment	reduced speed warning info
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	roadway dynamic signage status
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	track status
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	traffic gap information
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	vehicle signage local data
ITS Roadway Equipment	Maint and Constr Management Center	noise data
ITS Roadway Equipment	Maint and Constr Management Center	roadway advisory radio status
ITS Roadway Equipment	Maint and Constr Management Center	roadway dynamic signage status
ITS Roadway Equipment	Maint and Constr Management Center	speed monitoring information
ITS Roadway Equipment	Maint and Constr Management Center	traffic detector data
ITS Roadway Equipment	Maint and Constr Management Center	traffic images
ITS Roadway Equipment	Other ITS Roadway Equipment	signal control data
ITS Roadway Equipment	Other Traffic Signal Controller	local priority request details
ITS Roadway Equipment	Traffic Management Center	environmental sensor data
ITS Roadway Equipment	Traffic Management Center	pedestrian safety warning status
ITS Roadway Equipment	Traffic Management Center	rail crossing blockage notification
ITS Roadway Equipment	Traffic Management Center	rail crossing status
ITS Roadway Equipment	Traffic Management Center	right-of-way request notification
ITS Roadway Equipment	Traffic Management Center	roadway advisory radio status
ITS Roadway Equipment	Traffic Management Center	roadway dynamic signage status
ITS Roadway Equipment	Traffic Management Center	roadway warning system status
ITS Roadway Equipment	Traffic Management Center	signal control status
ITS Roadway Equipment	Traffic Management Center	speed monitoring information
ITS Roadway Equipment	Traffic Management Center	stop sign gap assist status
ITS Roadway Equipment	Traffic Management Center	traffic detector data
ITS Roadway Equipment	Traffic Management Center	traffic images
ITS Roadway Equipment	Traffic Management Center	variable speed limit status
ITS Roadway Equipment	Wayside Equipment	rail crossing blockage notification
ITS Roadway Equipment	Wayside Equipment	rail crossing operational status
Maint and Constr Management Center	Connected Vehicle Roadside Equipment	reduced speed warning info
Maint and Constr Management Center	Connected Vehicle Roadside Equipment	vehicle signage application info
Maint and Constr Management Center	ITS Roadway Equipment	roadway advisory radio data
Maint and Constr Management Center	ITS Roadway Equipment	roadway dynamic signage data
Maint and Constr Management Center	ITS Roadway Equipment	speed monitoring control
Maint and Constr Management Center	ITS Roadway Equipment	traffic detector control
Maint and Constr Management Center	ITS Roadway Equipment	video surveillance control

Solution Name:	(None-Data) - EU-ICIP-C2F	Number of Issues:	5	Total Issue Severity:	54
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Map Update System	Connected Vehicle Roadside Equipment	map updates
Map Update System	Connected Vehicle Roadside Equipment	parking facility geometry
Map Update System	Connected Vehicle Roadside Equipment	roadway geometry
Map Update System	Parking Management System	parking facility geometry
Map Update System	Public Information Device	map updates
Other Connected Vehicle Roadside Equipment	Connected Vehicle Roadside Equipment	wrong way vehicle detected
Other ITS Roadway Equipment	ITS Roadway Equipment	signal control data
Other Traffic Signal Controller	ITS Roadway Equipment	local priority request details
Parking Management System	Connected Vehicle Roadside Equipment	parking management application info
Parking Management System	Connected Vehicle Roadside Equipment	vehicle signage local data
Traffic Management Center	Connected Vehicle Roadside Equipment	intersection management application info
Traffic Management Center	Connected Vehicle Roadside Equipment	intersection safety application info
Traffic Management Center	Connected Vehicle Roadside Equipment	queue warning application information
Traffic Management Center	Connected Vehicle Roadside Equipment	rail crossing application info
Traffic Management Center	Connected Vehicle Roadside Equipment	reduced speed warning info
Traffic Management Center	Connected Vehicle Roadside Equipment	situation data collection parameters
Traffic Management Center	Connected Vehicle Roadside Equipment	speed management application information
Traffic Management Center	Connected Vehicle Roadside Equipment	stop sign gap assist info
Traffic Management Center	Connected Vehicle Roadside Equipment	traffic monitoring application info
Traffic Management Center	Connected Vehicle Roadside Equipment	vehicle signage application info
Traffic Management Center	Connected Vehicle Roadside Equipment	work zone application info
Traffic Management Center	ITS Roadway Equipment	environmental sensors control
Traffic Management Center	ITS Roadway Equipment	pedestrian safety warning control
Traffic Management Center	ITS Roadway Equipment	rail crossing control data
Traffic Management Center	ITS Roadway Equipment	rail crossing request
Traffic Management Center	ITS Roadway Equipment	roadway advisory radio data
Traffic Management Center	ITS Roadway Equipment	roadway dynamic signage data
Traffic Management Center	ITS Roadway Equipment	roadway warning system control
Traffic Management Center	ITS Roadway Equipment	signal control commands
Traffic Management Center	ITS Roadway Equipment	signal control device configuration
Traffic Management Center	ITS Roadway Equipment	signal control plans
Traffic Management Center	ITS Roadway Equipment	signal system configuration
Traffic Management Center	ITS Roadway Equipment	speed monitoring control
Traffic Management Center	ITS Roadway Equipment	stop sign gap assist control
Traffic Management Center	ITS Roadway Equipment	traffic detector control
Traffic Management Center	ITS Roadway Equipment	variable speed limit control

Solution Name:	(None-Data) - EU-ICIP-C2F	Number of Issues:	5	Total Issue Severity:	54
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Traffic Management Center	ITS Roadway Equipment	video surveillance control
Transportation Information Center	Connected Vehicle Roadside Equipment	electric charging services inventory
Transportation Information Center	Connected Vehicle Roadside Equipment	road weather advisory info
Transportation Information Center	Connected Vehicle Roadside Equipment	traveler information application info
Tunnel Management System	Connected Vehicle Roadside Equipment	vehicle signage application info
Wayside Equipment	Connected Vehicle Roadside Equipment	arriving train information
Wayside Equipment	Connected Vehicle Roadside Equipment	track status
Wayside Equipment	ITS Roadway Equipment	arriving train information
Wayside Equipment	ITS Roadway Equipment	track status

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Core authorization - base services	Develop an internationally acceptable standard for the user permission sets, permission request, permission update request, permission request received, and device identification information triples contained within the Core Authorization Service Package.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source	Destination	Flow Name				
Connected Vehicle Roadside Equipment	Center	device identification				
ITS Roadway Equipment	Center	device identification				

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Wrong way vehicle detected	Develop an internationally acceptable ITS application specification for providing distributing wrong way vehicle alerts in real-time.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source	Destination	Flow Name				
Connected Vehicle Roadside Equipment	Other Connected Vehicle Roadside Equipment	wrong way vehicle detected				
Other Connected Vehicle Roadside Equipment	Connected Vehicle Roadside Equipment	wrong way vehicle detected				

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for updating maps, roadway geometry, and intersection geometry among centres (e.g., between a Map Update System and a centre).	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source	Destination	Flow Name				
Map Update System	Parking Management System	parking facility geometry				

Solution Name:		(None-Data) - EU-ICIP-C2F				Number of Issues:	5	Total Issue Severity:	54
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Message signs	Develop an internationally acceptable ITS application specification for managing message signs for secure communications with proper access control.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		ITS Roadway Equipment		roadway dynamic signage data					
ITS Roadway Equipment		Connected Vehicle Roadside Equipment		roadway dynamic signage status					
ITS Roadway Equipment		Maint and Constr Management Center		roadway dynamic signage status					
ITS Roadway Equipment		Traffic Management Center		roadway dynamic signage status					
ITS Roadway Equipment		Traffic Management Center		roadway warning system status					
Maint and Constr Management Center		ITS Roadway Equipment		roadway dynamic signage data					
Traffic Management Center		ITS Roadway Equipment		roadway dynamic signage data					
Traffic Management Center		ITS Roadway Equipment		roadway warning system control					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Signal control	Develop an internationally acceptable ITS application specification for the interface between a traffic signal controller and a roadside station to exchange raw data related to the SPaT, SRM, and SSM using the secure centre-to-field protocol.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		ITS Roadway Equipment		signal preemption request					
Connected Vehicle Roadside Equipment		ITS Roadway Equipment		signal priority service request					
Connected Vehicle Roadside Equipment		ITS Roadway Equipment		signal service request					
ITS Roadway Equipment		Connected Vehicle Roadside Equipment		conflict monitor status					
ITS Roadway Equipment		Connected Vehicle Roadside Equipment		intersection control status					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Speed enforcement	Develop an internationally acceptable ITS application specification for the use case of allowing a center to remotely control a speed enforcement application within ITS Roadway Equipment.				Future	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
ITS Roadway Equipment		Maint and Constr Management Center		speed monitoring information					
ITS Roadway Equipment		Traffic Management Center		speed monitoring information					
Maint and Constr Management Center		ITS Roadway Equipment		speed monitoring control					
Traffic Management Center		ITS Roadway Equipment		speed monitoring control					

Solution Name:		(None-Data) - EU-ICIP-C2F				Number of Issues:	5	Total Issue Severity:	54																							
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability																							
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Exception-based reporting	Develop an internationally acceptable ITS application specification for managing exception-based reports from other local field devices.				Urgent	Australia, European Union, United States																							
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>ITS Roadway Equipment</td><td>Connected Vehicle Roadside Equipment</td><td>vehicle signage local data</td></tr><tr><td>Parking Management System</td><td>Connected Vehicle Roadside Equipment</td><td>vehicle signage local data</td></tr></table>									Source	Destination	Flow Name	ITS Roadway Equipment	Connected Vehicle Roadside Equipment	vehicle signage local data	Parking Management System	Connected Vehicle Roadside Equipment	vehicle signage local data															
Source	Destination	Flow Name																														
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	vehicle signage local data																														
Parking Management System	Connected Vehicle Roadside Equipment	vehicle signage local data																														
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability																							
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Highway advisory radio	Develop an internationally acceptable ITS application specification for managing highway advisory radios for secure communications with proper access control.				Medium-term	United States																							
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>ITS Roadway Equipment</td><td>Maint and Constr Management Center</td><td>roadway advisory radio status</td></tr><tr><td>ITS Roadway Equipment</td><td>Traffic Management Center</td><td>roadway advisory radio status</td></tr><tr><td>Maint and Constr Management Center</td><td>ITS Roadway Equipment</td><td>roadway advisory radio data</td></tr><tr><td>Traffic Management Center</td><td>ITS Roadway Equipment</td><td>roadway advisory radio data</td></tr></table>									Source	Destination	Flow Name	ITS Roadway Equipment	Maint and Constr Management Center	roadway advisory radio status	ITS Roadway Equipment	Traffic Management Center	roadway advisory radio status	Maint and Constr Management Center	ITS Roadway Equipment	roadway advisory radio data	Traffic Management Center	ITS Roadway Equipment	roadway advisory radio data									
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Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Speed warning	Develop an internationally acceptable ITS application specification for providing roadway configuration data, current speed limits , warning parameters and thresholds to a speed warning application.				Urgent	Australia, European Union, United States																							
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Source	Destination	Flow Name																														
Connected Vehicle Roadside Equipment	Maint and Constr Management Center	reduced speed warning status																														
Connected Vehicle Roadside Equipment	Traffic Management Center	reduced speed warning status																														
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Maint and Constr Management Center	Connected Vehicle Roadside Equipment	reduced speed warning info																														
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Traffic Management Center	ITS Roadway Equipment	variable speed limit control																														
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability																							
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Private location and address	Develop an internationally acceptable ITS application specification that defines the operation of a Privacy Protection Gateway.				Urgent	Australia, European Union, United States																							
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Source	Destination	Flow Name																														
Connected Vehicle Roadside Equipment	Center	protected location and address flow																														

Solution Name:		(None-Data) - EU-ICIP-C2F				Number of Issues:	5	Total Issue Severity:	54
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Transportation sensor systems	Develop an internationally acceptable ITS application specification for exchanging transportation sensor station data with a management entity that uses the secure centre-to-field protocol.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
ITS Roadway Equipment		Maint and Constr Management Center			traffic detector data				
ITS Roadway Equipment		Traffic Management Center			traffic detector data				
Maint and Constr Management Center		ITS Roadway Equipment			traffic detector control				
Traffic Management Center		ITS Roadway Equipment			traffic detector control				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Secure installation/update of software	Develop an internationally acceptable standard for the secure installation, update, and validation of software (including application, support, and OS software) on devices. The process should allow a system to determine which devices have been updated and provide a mechanism to define when such updates are allowed, recommended, and required.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Center		Connected Vehicle Roadside Equipment			RSE application install/upgrade				
Connected Vehicle Roadside Equipment		Field Support Equipment			RSE application install/upgrade				
Field Support Equipment		Connected Vehicle Roadside Equipment			RSE application install/upgrade				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Weather information	Develop an internationally acceptable ITS application specification for directing an RSE to provide weather information to vehicles.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Connected Vehicle Roadside Equipment		Transportation Information Center			road weather advisory status				
Transportation Information Center		Connected Vehicle Roadside Equipment			road weather advisory info				



Solution Name:		(None-Data) - EU-ICIP-C2F			Number of Issues:	5	Total Issue Severity:	54																							
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability																								
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Data aggregation	Develop an internationally acceptable ITS application specification for an RSE to aggregate collected data and report the information to interested parties (e.g., centres).		Urgent	Australia, European Union, United States																								
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Connected Vehicle Roadside Equipment	ITS Roadway Equipment	traffic situation data																													
Connected Vehicle Roadside Equipment	Traffic Management Center	environmental situation data																													
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Connected Vehicle Roadside Equipment	Transportation Information Center	environmental situation data																													
Data Distribution System	Connected Vehicle Roadside Equipment	situation data collection parameters																													
Traffic Management Center	Connected Vehicle Roadside Equipment	situation data collection parameters																													
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability																								
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: CCTV	Develop an internationally acceptable ITS application specification for exchanging CCTV camera data with a management entity that uses the secure centre-to-field protocol.		Medium-term	Australia, European Union, United States																								
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Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry between a centres (e.g., a Map Update System) and field equipment.		Urgent	Australia, European Union, United States, Japan																								
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Source	Destination	Flow Name																													
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Map Update System	Connected Vehicle Roadside Equipment	parking facility geometry																													
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Solution Name:		(None-Data) - EU-ICIP-C2F			Number of Issues:	5	Total Issue Severity:	54
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Application management	Develop an internationally acceptable ITS application specification for generically managing applications (e.g., enabling, monitoring, etc.) within an RSE.			Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination			Flow Name			
Center		Connected Vehicle Roadside Equipment			RSE application information			
Center		Connected Vehicle Roadside Equipment			RSE control commands			
Connected Vehicle Roadside Equipment		Center			RSE application status			
Connected Vehicle Roadside Equipment		Field Support Equipment			RSE configuration settings			
Connected Vehicle Roadside Equipment		Field Support Equipment			RSE control commands			
Connected Vehicle Roadside Equipment		Field Support Equipment			RSE status			
Connected Vehicle Roadside Equipment		Maint and Constr Management Center			vehicle signage application status			
Connected Vehicle Roadside Equipment		Service Monitor System			RSE status			
Connected Vehicle Roadside Equipment		Traffic Management Center			intersection management application status			
Connected Vehicle Roadside Equipment		Traffic Management Center			intersection safety application status			
Connected Vehicle Roadside Equipment		Traffic Management Center			queue warning application status			
Connected Vehicle Roadside Equipment		Traffic Management Center			speed management application status			
Connected Vehicle Roadside Equipment		Traffic Management Center			traffic monitoring application status			
Connected Vehicle Roadside Equipment		Traffic Management Center			vehicle signage application status			
Connected Vehicle Roadside Equipment		Traffic Management Center			work zone application status			
Field Support Equipment		Connected Vehicle Roadside Equipment			RSE configuration settings			
Field Support Equipment		Connected Vehicle Roadside Equipment			RSE control commands			
Field Support Equipment		Connected Vehicle Roadside Equipment			RSE status			
Maint and Constr Management Center		Connected Vehicle Roadside Equipment			vehicle signage application info			
Traffic Management Center		Connected Vehicle Roadside Equipment			intersection management application info			
Traffic Management Center		Connected Vehicle Roadside Equipment			intersection safety application info			
Traffic Management Center		Connected Vehicle Roadside Equipment			queue warning application information			
Traffic Management Center		Connected Vehicle Roadside Equipment			speed management application information			
Traffic Management Center		Connected Vehicle Roadside Equipment			traffic monitoring application info			
Traffic Management Center		Connected Vehicle Roadside Equipment			vehicle signage application info			
Traffic Management Center		Connected Vehicle Roadside Equipment			work zone application info			
Tunnel Management System		Connected Vehicle Roadside Equipment			vehicle signage application info			

Solution Name:		(None-Data) - EU-ICIP-C2F				Number of Issues:	5	Total Issue Severity:	54																																	
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability																																	
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: EU signal operations	Develop an ITS application specification for exchanging configuration, plans, status, and commands for signal control and signal systems using the secure centre-to-field protocol.				Urgent	Australia, European Union																																	
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ITS Roadway Equipment	Other Traffic Signal Controller	local priority request details																																								
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Traffic Management Center	ITS Roadway Equipment	signal system configuration																																								
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability																																	
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Intersection infringement	Develop an internationally acceptable ITS application specification that defines the rules for providing intersection infringement information within a local environment.				Urgent	United States																																	
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Connected Vehicle Roadside Equipment	ITS Roadway Equipment	intersection infringement info																																								
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability																																	
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Update central map database	Develop an internationally acceptable ITS application specification that defines the rules for updating a central map database, including roadway and intersection geometry, based on real-world data readings from vehicles and transmitted to a map update system.				Medium-term	Australia, European Union, United States, Japan																																	
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Source	Destination	Flow Name																																								
Connected Vehicle Roadside Equipment	Map Update System	vehicle location data for mapping																																								

Solution Name:	(None-Data) - EU-ICIP-C2F	Number of Issues:	5	Total Issue Severity:	54
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Environmental sensor stations	Develop an internationally acceptable ITS application specification for managing environmental sensor stations for secure communications with proper access control.	Near-term	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source	Destination		Flow Name			
ITS Roadway Equipment	Connected Vehicle Roadside Equipment		environmental sensor data			
ITS Roadway Equipment	Traffic Management Center		environmental sensor data			
Traffic Management Center	ITS Roadway Equipment		environmental sensors control			

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Still under development	A draft of the standard has been developed by the working group, but it was still under development at the time the HARTS analysis was performed.	Medium	I-F: Data aggregation	Develop an internationally acceptable ITS application specification for an RSE to aggregate collected data and report the information to interested parties (e.g., centres).	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source	Destination		Flow Name			
Connected Vehicle Roadside Equipment	ITS Roadway Equipment		environmental situation data			
Connected Vehicle Roadside Equipment	Traffic Management Center		environmental situation data			
Connected Vehicle Roadside Equipment	Transportation Information Center		environmental situation data			

Solution Name:	(None-Data) - EU-ICIP-C2F	Number of Issues:	5	Total Issue Severity:	54
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Draft not available (Critical)	The standards development organization has established a work item for the subject standard but a draft is not available for this critical feature to enable the interface. The draft may be missing due to the work item being new or simply a lack of activity on the work item.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Center	Connected Vehicle Roadside Equipment	RSE application information
Center	Connected Vehicle Roadside Equipment	RSE application install/upgrade
Center	Connected Vehicle Roadside Equipment	RSE control commands
Connected Vehicle Roadside Equipment	Center	device identification
Connected Vehicle Roadside Equipment	Center	protected location and address flow
Connected Vehicle Roadside Equipment	Center	RSE application status
Connected Vehicle Roadside Equipment	Data Distribution System	local situation data
Connected Vehicle Roadside Equipment	Field Support Equipment	RSE application install/upgrade
Connected Vehicle Roadside Equipment	Field Support Equipment	RSE configuration settings
Connected Vehicle Roadside Equipment	Field Support Equipment	RSE control commands
Connected Vehicle Roadside Equipment	Field Support Equipment	RSE status
Connected Vehicle Roadside Equipment	ITS Roadway Equipment	environmental situation data
Connected Vehicle Roadside Equipment	ITS Roadway Equipment	intersection infringement info
Connected Vehicle Roadside Equipment	ITS Roadway Equipment	pedestrian location information
Connected Vehicle Roadside Equipment	ITS Roadway Equipment	roadway dynamic signage data
Connected Vehicle Roadside Equipment	ITS Roadway Equipment	signal preemption request
Connected Vehicle Roadside Equipment	ITS Roadway Equipment	signal priority service request
Connected Vehicle Roadside Equipment	ITS Roadway Equipment	signal service request
Connected Vehicle Roadside Equipment	ITS Roadway Equipment	traffic situation data
Connected Vehicle Roadside Equipment	Maint and Constr Management Center	reduced speed warning status
Connected Vehicle Roadside Equipment	Maint and Constr Management Center	vehicle signage application status
Connected Vehicle Roadside Equipment	Map Update System	vehicle location data for mapping
Connected Vehicle Roadside Equipment	Other Connected Vehicle Roadside Equipment	wrong way vehicle detected
Connected Vehicle Roadside Equipment	Parking Management System	connected vehicle parking data
Connected Vehicle Roadside Equipment	Service Monitor System	RSE status
Connected Vehicle Roadside Equipment	Traffic Management Center	environmental situation data
Connected Vehicle Roadside Equipment	Traffic Management Center	intersection management application status
Connected Vehicle Roadside Equipment	Traffic Management Center	intersection safety application status

Solution Name:	(None-Data) - EU-ICIP-C2F	Number of Issues:	5	Total Issue Severity:	54
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Connected Vehicle Roadside Equipment	Traffic Management Center	queue warning application status
Connected Vehicle Roadside Equipment	Traffic Management Center	rail crossing application status
Connected Vehicle Roadside Equipment	Traffic Management Center	reduced speed warning status
Connected Vehicle Roadside Equipment	Traffic Management Center	speed management application status
Connected Vehicle Roadside Equipment	Traffic Management Center	stop sign gap assist RSE status
Connected Vehicle Roadside Equipment	Traffic Management Center	traffic monitoring application status
Connected Vehicle Roadside Equipment	Traffic Management Center	traffic situation data
Connected Vehicle Roadside Equipment	Traffic Management Center	vehicle signage application status
Connected Vehicle Roadside Equipment	Traffic Management Center	work zone application status
Connected Vehicle Roadside Equipment	Transportation Information Center	electric charging station information
Connected Vehicle Roadside Equipment	Transportation Information Center	environmental situation data
Connected Vehicle Roadside Equipment	Transportation Information Center	road weather advisory status
Connected Vehicle Roadside Equipment	Transportation Information Center	traveler information application status
Connected Vehicle Roadside Equipment	Wayside Equipment	rail crossing blockage notification
Connected Vehicle Roadside Equipment	Wayside Equipment	rail crossing operational status
Data Distribution System	Connected Vehicle Roadside Equipment	local traveler information distribution data
Data Distribution System	Connected Vehicle Roadside Equipment	situation data collection parameters
Field Support Equipment	Connected Vehicle Roadside Equipment	RSE application install/upgrade
Field Support Equipment	Connected Vehicle Roadside Equipment	RSE configuration settings
Field Support Equipment	Connected Vehicle Roadside Equipment	RSE control commands
Field Support Equipment	Connected Vehicle Roadside Equipment	RSE status
ITS Roadway Equipment	Center	device identification
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	arriving train information
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	conflict monitor status
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	environmental sensor data
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	intersection control status
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	ITS roadway equipment information
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	pedestrian crossing status
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	reduced speed warning info
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	roadway dynamic signage status
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	track status
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	traffic gap information
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	vehicle signage local data
ITS Roadway Equipment	Maint and Constr Management Center	noise data
ITS Roadway Equipment	Maint and Constr Management Center	roadway advisory radio status
ITS Roadway Equipment	Maint and Constr Management Center	roadway dynamic signage status

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ITS Roadway Equipment	Maint and Constr Management Center	speed monitoring information
ITS Roadway Equipment	Maint and Constr Management Center	traffic detector data
ITS Roadway Equipment	Maint and Constr Management Center	traffic images
ITS Roadway Equipment	Other ITS Roadway Equipment	signal control data
ITS Roadway Equipment	Other Traffic Signal Controller	local priority request details
ITS Roadway Equipment	Traffic Management Center	environmental sensor data
ITS Roadway Equipment	Traffic Management Center	pedestrian safety warning status
ITS Roadway Equipment	Traffic Management Center	rail crossing blockage notification
ITS Roadway Equipment	Traffic Management Center	rail crossing status
ITS Roadway Equipment	Traffic Management Center	right-of-way request notification
ITS Roadway Equipment	Traffic Management Center	roadway advisory radio status
ITS Roadway Equipment	Traffic Management Center	roadway dynamic signage status
ITS Roadway Equipment	Traffic Management Center	roadway warning system status
ITS Roadway Equipment	Traffic Management Center	signal control status
ITS Roadway Equipment	Traffic Management Center	speed monitoring information
ITS Roadway Equipment	Traffic Management Center	stop sign gap assist status
ITS Roadway Equipment	Traffic Management Center	traffic detector data
ITS Roadway Equipment	Traffic Management Center	traffic images
ITS Roadway Equipment	Traffic Management Center	variable speed limit status
ITS Roadway Equipment	Wayside Equipment	rail crossing blockage notification
ITS Roadway Equipment	Wayside Equipment	rail crossing operational status
Maint and Constr Management Center	Connected Vehicle Roadside Equipment	reduced speed warning info
Maint and Constr Management Center	Connected Vehicle Roadside Equipment	vehicle signage application info
Maint and Constr Management Center	ITS Roadway Equipment	roadway advisory radio data
Maint and Constr Management Center	ITS Roadway Equipment	roadway dynamic signage data
Maint and Constr Management Center	ITS Roadway Equipment	speed monitoring control
Maint and Constr Management Center	ITS Roadway Equipment	traffic detector control
Maint and Constr Management Center	ITS Roadway Equipment	video surveillance control
Map Update System	Connected Vehicle Roadside Equipment	map updates
Map Update System	Connected Vehicle Roadside Equipment	parking facility geometry
Map Update System	Connected Vehicle Roadside Equipment	roadway geometry
Map Update System	Parking Management System	parking facility geometry
Map Update System	Public Information Device	map updates
Other Connected Vehicle Roadside Equipment	Connected Vehicle Roadside Equipment	wrong way vehicle detected
Other ITS Roadway Equipment	ITS Roadway Equipment	signal control data
Other Traffic Signal Controller	ITS Roadway Equipment	local priority request details



Solution Name:	(None-Data) - EU-ICIP-C2F	Number of Issues:	5	Total Issue Severity:	54
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Parking Management System	Connected Vehicle Roadside Equipment	parking management application info
Parking Management System	Connected Vehicle Roadside Equipment	vehicle signage local data
Traffic Management Center	Connected Vehicle Roadside Equipment	intersection management application info
Traffic Management Center	Connected Vehicle Roadside Equipment	intersection safety application info
Traffic Management Center	Connected Vehicle Roadside Equipment	queue warning application information
Traffic Management Center	Connected Vehicle Roadside Equipment	rail crossing application info
Traffic Management Center	Connected Vehicle Roadside Equipment	reduced speed warning info
Traffic Management Center	Connected Vehicle Roadside Equipment	situation data collection parameters
Traffic Management Center	Connected Vehicle Roadside Equipment	speed management application information
Traffic Management Center	Connected Vehicle Roadside Equipment	stop sign gap assist info
Traffic Management Center	Connected Vehicle Roadside Equipment	traffic monitoring application info
Traffic Management Center	Connected Vehicle Roadside Equipment	vehicle signage application info
Traffic Management Center	Connected Vehicle Roadside Equipment	work zone application info
Traffic Management Center	ITS Roadway Equipment	environmental sensors control
Traffic Management Center	ITS Roadway Equipment	pedestrian safety warning control
Traffic Management Center	ITS Roadway Equipment	rail crossing control data
Traffic Management Center	ITS Roadway Equipment	rail crossing request
Traffic Management Center	ITS Roadway Equipment	roadway advisory radio data
Traffic Management Center	ITS Roadway Equipment	roadway dynamic signage data
Traffic Management Center	ITS Roadway Equipment	roadway warning system control
Traffic Management Center	ITS Roadway Equipment	signal control commands
Traffic Management Center	ITS Roadway Equipment	signal control device configuration
Traffic Management Center	ITS Roadway Equipment	signal control plans
Traffic Management Center	ITS Roadway Equipment	signal system configuration
Traffic Management Center	ITS Roadway Equipment	speed monitoring control
Traffic Management Center	ITS Roadway Equipment	stop sign gap assist control
Traffic Management Center	ITS Roadway Equipment	traffic detector control
Traffic Management Center	ITS Roadway Equipment	variable speed limit control
Traffic Management Center	ITS Roadway Equipment	video surveillance control
Transportation Information Center	Connected Vehicle Roadside Equipment	electric charging services inventory
Transportation Information Center	Connected Vehicle Roadside Equipment	road weather advisory info
Transportation Information Center	Connected Vehicle Roadside Equipment	traveler information application info
Tunnel Management System	Connected Vehicle Roadside Equipment	vehicle signage application info
Wayside Equipment	Connected Vehicle Roadside Equipment	arriving train information
Wayside Equipment	Connected Vehicle Roadside Equipment	track status
Wayside Equipment	ITS Roadway Equipment	arriving train information

Solution Name:		(None-Data) - EU-ICIP-C2F				Number of Issues:	5	Total Issue Severity:	54
Wayside Equipment		ITS Roadway Equipment				track status			
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability	
Identifier registry does not exist	The standard defines a field which requires a globally unique identifier, but no registration authority exists to assign these values.	Medium	Identifier registry	Implement a centralised identifier registry network that ensures the assignment of globally unique C-ITS identifiers.			Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Connected Vehicle Roadside Equipment		Center			device identification				
ITS Roadway Equipment		Center			device identification				

Solution Name:	(None-Data) - FNTF/M5	Number of Issues:	4	Total Issue Severity:	41
This solution is used within the E.U., and Australia. It combines standards associated with (None-Data) with those for V-X: FNTF/M5. The (None-Data) standards include an unspecified set of standards at the upper layers. The V-X: FNTF/M5 standards include lower-layer standards that support connectionless, broadcast and unicast, near constant, ultra-low latency vehicle-to-any communications within ~300m using Fast Network Transport Profile (FNTF) over the 5 GHz spectrum as allocated within a region. The broadcast mode is interoperable with WAVE WSMP. The M5 radio of this profile can receive ITS G5 frames.					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Intersection infringement	Develop an internationally acceptable ITS application specification that defines the rules for providing intersection infringement information within a local environment.	Urgent	United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination		Flow Name		
	Other Vehicle OBEs	Vehicle OBE		intersection infringement info		
	Vehicle OBE	Connected Vehicle Roadside Equipment		intersection infringement info		
	Vehicle OBE	Other Vehicle OBEs		intersection infringement info		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry and associated regulations and restrictions over mobile Internet from a centre to user devices (e.g., a vehicle or personal information device).	Urgent	Australia, European Union, United States, Japan
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination		Flow Name		
	Vehicle OBE	Other Vehicle OBEs		vehicle road information		

Solution Name:		(None-Data) - FNTP/M5			Number of Issues:	4	Total Issue Severity:	41
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).		Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Connected Vehicle Roadside Equipment		Personal Information Device		pedestrian safety information				
Connected Vehicle Roadside Equipment		Vehicle OBE		traffic gap information				
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle payment request				
Other Vehicle OBEs		Vehicle OBE		intersection infringement info				
Personal Information Device		Connected Vehicle Roadside Equipment		personal location				
Personal Information Device		Vehicle OBE		personal location				
Vehicle OBE		Connected Vehicle Roadside Equipment		intersection infringement info				
Vehicle OBE		Other Vehicle OBEs		intersection infringement info				
Vehicle OBE		Other Vehicle OBEs		vehicle road information				
Vehicle OBE		Other Vehicle OBEs		vehicle travel time data				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.		Urgent	Australia, European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Connected Vehicle Roadside Equipment		Personal Information Device		pedestrian safety information				
Connected Vehicle Roadside Equipment		Vehicle OBE		traffic gap information				
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle payment request				
Other Vehicle OBEs		Vehicle OBE		intersection infringement info				
Personal Information Device		Connected Vehicle Roadside Equipment		personal location				
Personal Information Device		Vehicle OBE		personal location				
Vehicle OBE		Connected Vehicle Roadside Equipment		intersection infringement info				
Vehicle OBE		Other Vehicle OBEs		intersection infringement info				
Vehicle OBE		Other Vehicle OBEs		vehicle road information				
Vehicle OBE		Other Vehicle OBEs		vehicle travel time data				

Solution Name:		(None-Data) - FNTP/M5				Number of Issues:	4	Total Issue Severity:	41
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Intersection infringement	Develop an internationally acceptable ITS application specification that defines the rules for providing intersection infringement information within a local environment.				Urgent	United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source			Destination			Flow Name			
Other Vehicle OBEs			Vehicle OBE			intersection infringement info			
Vehicle OBE			Connected Vehicle Roadside Equipment			intersection infringement info			
Vehicle OBE			Other Vehicle OBEs			intersection infringement info			

Solution Name:	(None-Data) - Guaranteed Internet (US)	Number of Issues:	2	Total Issue Severity:	35
This solution is used within the U.S., E.U., and Australia. It combines standards associated with (None-Data) with those for I-I: Guaranteed Internet (US). The (None-Data) standards include an unspecified set of standards at the upper layers. The I-I: Guaranteed Internet (US) standards include lower-layer standards that support secure communications with guaranteed delivery between ITS equipment using X.509 or IEEE 1609.2 security certificates.					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: Update SIRI for other transport modes	Revise the SIRI application specification to support the exchange of ferry, airline, and inter-city rail information between centres.	Near-term	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Alternate Mode Transportation Center		Transportation Information Center		alternate mode incident information		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: System monitoring	Develop an internationally acceptable ITS application specification for the Service Monitor System to monitor other centers and support systems and to report issues.	Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Data Distribution System		Service Monitor System		support system status		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Core authorization - coordination among centres	Develop an internationally acceptable standard for the user permission request coordination information triples contained within the Core Authorization Service Package.	Near-term	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Authorizing Center		Other Authorizing Centers		permission request coordination		
Other Authorizing Centers		Authorizing Center		permission request coordination		

Solution Name:	(None-Data) - Guaranteed Internet (US)	Number of Issues:	2	Total Issue Severity:	35
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Core authorization - base services	Develop an internationally acceptable standard for the user permission sets, permission request, permission update request, permission request received, and device identification information triples contained within the Core Authorization Service Package.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution			
Source	Destination	Flow Name	
Authorizing Center	Center	permission request received	
Authorizing Center	Cooperative ITS Credentials Management System	user permission sets	
Center	Authorizing Center	permission request	
Center	Authorizing Center	permission update request	

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Private location and address	Develop an internationally acceptable ITS application specification that defines the operation of a Privacy Protection Gateway.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution			
Source	Destination	Flow Name	
Connected Vehicle Roadside Equipment	Center	protected location and address flow	
Connected Vehicle Roadside Equipment	Cooperative ITS Credentials Management System	protected location and address flow	
Privacy Protection Gateway	Center	protected location and address flow	
Privacy Protection Gateway	Cooperative ITS Credentials Management System	protected location and address flow	

Solution Name:	(None-Data) - Guaranteed Internet (US)	Number of Issues:	2	Total Issue Severity:	35
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Security and credentials management - base services	Develop an internationally acceptable standard for the security policy and networking information, device enrolment information, security credentials, security credential revocations, and misbehaviour report information triples contained within the Security and Credentials Management Service Package.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Center	Cooperative ITS Credentials Management System	device enrollment information
Center	Cooperative ITS Credentials Management System	misbehavior report
Connected Vehicle Roadside Equipment	Cooperative ITS Credentials Management System	device enrollment information
Connected Vehicle Roadside Equipment	Cooperative ITS Credentials Management System	misbehavior report
Cooperative ITS Credentials Management System	Center	security credential revocations
Cooperative ITS Credentials Management System	Center	security credentials
Cooperative ITS Credentials Management System	Center	security policy and networking information
Cooperative ITS Credentials Management System	Connected Vehicle Roadside Equipment	security credential revocations
Cooperative ITS Credentials Management System	Connected Vehicle Roadside Equipment	security credentials
Cooperative ITS Credentials Management System	Connected Vehicle Roadside Equipment	security policy and networking information
Cooperative ITS Credentials Management System	Data Distribution System	security credential revocations
Cooperative ITS Credentials Management System	Data Distribution System	security credentials
Cooperative ITS Credentials Management System	Data Distribution System	security policy and networking information
Cooperative ITS Credentials Management System	Object Registration and Discovery Service	security credential revocations
Cooperative ITS Credentials Management System	Object Registration and Discovery Service	security credentials
Cooperative ITS Credentials Management System	Object Registration and Discovery Service	security policy and networking information
Cooperative ITS Credentials Management System	Service Monitor System	security credential revocations
Cooperative ITS Credentials Management System	Service Monitor System	security credentials
Cooperative ITS Credentials Management System	Service Monitor System	security policy and networking information
Cooperative ITS Credentials Management System	Wide Area Information Disseminator	security credential revocations
Cooperative ITS Credentials Management System	Wide Area Information Disseminator	security credentials
Cooperative ITS Credentials Management System	Wide Area Information Disseminator	security policy and networking information
Data Distribution System	Cooperative ITS Credentials Management System	device enrollment information
Data Distribution System	Cooperative ITS Credentials Management System	misbehavior report
Object Registration and Discovery Service	Cooperative ITS Credentials Management System	device enrollment information
Object Registration and Discovery Service	Cooperative ITS Credentials Management System	misbehavior report
Service Monitor System	Cooperative ITS Credentials Management System	device enrollment information
Service Monitor System	Cooperative ITS Credentials Management System	misbehavior report
Wide Area Information Disseminator	Cooperative ITS Credentials Management System	device enrollment information
Wide Area Information Disseminator	Cooperative ITS Credentials Management System	misbehavior report

Solution Name:		(None-Data) - Guaranteed Internet (US)				Number of Issues:	2	Total Issue Severity:	35
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Security and credentials management - coordination among CCMS	Develop internationally acceptable standardised solutions that facilitate Credential Management Systems coordination of enrolment credentialing, authorization credentialing, misbehavior analysis and certificate revocation processes, so that actions undertaken by one CCMS may be properly referenced and/or utilized by other CCMS, and so that relevant information for these activities may be appropriately shared between CCMS.				Near-term	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Cooperative ITS Credentials Management System		Other CCMS		authorization coordination					
Cooperative ITS Credentials Management System		Other CCMS		enrollment coordination					
Cooperative ITS Credentials Management System		Other CCMS		misbehavior analysis coordination					
Cooperative ITS Credentials Management System		Other CCMS		revocation coordination					
Other CCMS		Cooperative ITS Credentials Management System		authorization coordination					
Other CCMS		Cooperative ITS Credentials Management System		enrollment coordination					
Other CCMS		Cooperative ITS Credentials Management System		misbehavior analysis coordination					
Other CCMS		Cooperative ITS Credentials Management System		revocation coordination					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Secure installation/update of software	Develop an internationally acceptable standard for the secure installation, update, and validation of software (including application, support, and OS software) on devices. The process should allow a system to determine which devices have been updated and provide a mechanism to define when such updates are allowed, recommended, and required.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Center		Connected Vehicle Roadside Equipment		RSE application install/upgrade					
Connected Vehicle Roadside Equipment		Field Support Equipment		RSE application install/upgrade					
Field Support Equipment		Connected Vehicle Roadside Equipment		RSE application install/upgrade					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry between a centres (e.g., a Map Update System) and field equipment.				Urgent	Australia, European Union, United States, Japan
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Map Update System		Public Information Device		map updates					

Solution Name:	(None-Data) - Guaranteed Internet (US)	Number of Issues:	2	Total Issue Severity:	35
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Credentials management system	Implement regional (security) credentials management systems that are interoperable.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Center	Cooperative ITS Credentials Management System	device enrollment information
Center	Cooperative ITS Credentials Management System	misbehavior report
Connected Vehicle Roadside Equipment	Cooperative ITS Credentials Management System	device enrollment information
Connected Vehicle Roadside Equipment	Cooperative ITS Credentials Management System	misbehavior report
Cooperative ITS Credentials Management System	Center	security credential revocations
Cooperative ITS Credentials Management System	Center	security credentials
Cooperative ITS Credentials Management System	Center	security policy and networking information
Cooperative ITS Credentials Management System	Connected Vehicle Roadside Equipment	security credential revocations
Cooperative ITS Credentials Management System	Connected Vehicle Roadside Equipment	security credentials
Cooperative ITS Credentials Management System	Connected Vehicle Roadside Equipment	security policy and networking information
Cooperative ITS Credentials Management System	Data Distribution System	security credential revocations
Cooperative ITS Credentials Management System	Data Distribution System	security credentials
Cooperative ITS Credentials Management System	Data Distribution System	security policy and networking information
Cooperative ITS Credentials Management System	Object Registration and Discovery Service	security credential revocations
Cooperative ITS Credentials Management System	Object Registration and Discovery Service	security credentials
Cooperative ITS Credentials Management System	Object Registration and Discovery Service	security policy and networking information
Cooperative ITS Credentials Management System	Service Monitor System	security credential revocations
Cooperative ITS Credentials Management System	Service Monitor System	security credentials
Cooperative ITS Credentials Management System	Service Monitor System	security policy and networking information
Cooperative ITS Credentials Management System	Wide Area Information Disseminator	security credential revocations
Cooperative ITS Credentials Management System	Wide Area Information Disseminator	security credentials
Cooperative ITS Credentials Management System	Wide Area Information Disseminator	security policy and networking information
Data Distribution System	Cooperative ITS Credentials Management System	device enrollment information
Data Distribution System	Cooperative ITS Credentials Management System	misbehavior report
Object Registration and Discovery Service	Cooperative ITS Credentials Management System	device enrollment information
Object Registration and Discovery Service	Cooperative ITS Credentials Management System	misbehavior report
Service Monitor System	Cooperative ITS Credentials Management System	device enrollment information
Service Monitor System	Cooperative ITS Credentials Management System	misbehavior report
Wide Area Information Disseminator	Cooperative ITS Credentials Management System	device enrollment information
Wide Area Information Disseminator	Cooperative ITS Credentials Management System	misbehavior report



Solution Name:	(None-Data) - Guaranteed Internet (US)	Number of Issues:	2	Total Issue Severity:	35
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Alternate Mode Transportation Center	Transportation Information Center	alternate mode incident information
Alternate Mode Transportation Center	Transportation Information Center	alternate mode information
Alternate Mode Transportation Center	Transportation Information Center	alternate mode service demand info
Alternate Mode Transportation Center	Transportation Information Center	service request
Authorizing Center	Center	permission request received
Authorizing Center	Cooperative ITS Credentials Management System	user permission sets
Authorizing Center	Other Authorizing Centers	permission request coordination
Center	Authorizing Center	permission request
Center	Authorizing Center	permission update request
Center	Connected Vehicle Roadside Equipment	RSE application install/upgrade
Center	Cooperative ITS Credentials Management System	device enrollment information
Center	Cooperative ITS Credentials Management System	misbehavior report
Connected Vehicle Roadside Equipment	Center	protected location and address flow
Connected Vehicle Roadside Equipment	Cooperative ITS Credentials Management System	device enrollment information
Connected Vehicle Roadside Equipment	Cooperative ITS Credentials Management System	misbehavior report
Connected Vehicle Roadside Equipment	Cooperative ITS Credentials Management System	protected location and address flow
Connected Vehicle Roadside Equipment	Field Support Equipment	RSE application install/upgrade
Connected Vehicle Roadside Equipment	Payment Administration Center	access violation notification
Connected Vehicle Roadside Equipment	Payment Administration Center	road use history
Cooperative ITS Credentials Management System	Center	security credential revocations
Cooperative ITS Credentials Management System	Center	security credentials
Cooperative ITS Credentials Management System	Center	security policy and networking information
Cooperative ITS Credentials Management System	Connected Vehicle Roadside Equipment	security credential revocations
Cooperative ITS Credentials Management System	Connected Vehicle Roadside Equipment	security credentials
Cooperative ITS Credentials Management System	Connected Vehicle Roadside Equipment	security policy and networking information
Cooperative ITS Credentials Management System	Data Distribution System	security credential revocations
Cooperative ITS Credentials Management System	Data Distribution System	security credentials
Cooperative ITS Credentials Management System	Data Distribution System	security policy and networking information
Cooperative ITS Credentials Management System	Object Registration and Discovery Service	security credential revocations
Cooperative ITS Credentials Management System	Object Registration and Discovery Service	security credentials

Solution Name:	(None-Data) - Guaranteed Internet (US)	Number of Issues:	2	Total Issue Severity:	35
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Cooperative ITS Credentials Management System	Object Registration and Discovery Service	security policy and networking information
Cooperative ITS Credentials Management System	Other CCMS	authorization coordination
Cooperative ITS Credentials Management System	Other CCMS	enrollment coordination
Cooperative ITS Credentials Management System	Other CCMS	misbehavior analysis coordination
Cooperative ITS Credentials Management System	Other CCMS	revocation coordination
Cooperative ITS Credentials Management System	Service Monitor System	security credential revocations
Cooperative ITS Credentials Management System	Service Monitor System	security credentials
Cooperative ITS Credentials Management System	Service Monitor System	security policy and networking information
Cooperative ITS Credentials Management System	Wide Area Information Disseminator	security credential revocations
Cooperative ITS Credentials Management System	Wide Area Information Disseminator	security credentials
Cooperative ITS Credentials Management System	Wide Area Information Disseminator	security policy and networking information
Data Distribution System	Cooperative ITS Credentials Management System	device enrollment information
Data Distribution System	Cooperative ITS Credentials Management System	misbehavior report
Data Distribution System	Service Monitor System	support system status
DMV	Payment Administration Center	registration
Emissions Management Center	Payment Administration Center	low emissions zone coordination
Emissions Management Center	Payment Administration Center	low emissions zone operations information
Field Support Equipment	Connected Vehicle Roadside Equipment	RSE application install/upgrade
Map Update System	Public Information Device	map updates
Object Registration and Discovery Service	Cooperative ITS Credentials Management System	device enrollment information
Object Registration and Discovery Service	Cooperative ITS Credentials Management System	misbehavior report
Other Authorizing Centers	Authorizing Center	permission request coordination
Other CCMS	Cooperative ITS Credentials Management System	authorization coordination
Other CCMS	Cooperative ITS Credentials Management System	enrollment coordination
Other CCMS	Cooperative ITS Credentials Management System	misbehavior analysis coordination
Other CCMS	Cooperative ITS Credentials Management System	revocation coordination
Payment Administration Center	Connected Vehicle Roadside Equipment	road use charges
Payment Administration Center	Connected Vehicle Roadside Equipment	vehicle payment request
Payment Administration Center	DMV	license request
Payment Administration Center	Emissions Management Center	low emissions zone coordination
Payment Administration Center	Enforcement Center	payment violation notification
Payment Administration Center	Parking Management System	vehicle payment request
Payment Administration Center	Public Information Device	traveler payment request
Payment Administration Center	Public Information Device	user account reports
Privacy Protection Gateway	Center	protected location and address flow
Privacy Protection Gateway	Cooperative ITS Credentials Management System	protected location and address flow



Solution Name:		(None-Data) - Guaranteed Internet (X.509)				Number of Issues:	1	Total Issue Severity:	32
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: Equipment maintenance coordination	Develop an internationally acceptable ITS application specification for C-C exchange of equipment maintenance and status information				Near-term	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Service Monitor System		Center		RSE fault data					
Service Monitor System		Maint and Constr Management Center		RSE fault data					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Security and credentials management - base services	Develop an internationally acceptable standard for the security policy and networking information, device enrolment information, security credentials, security credential revocations, and misbehaviour report information triples contained within the Security and Credentials Management Service Package.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Cooperative ITS Credentials Management System		Object Registration and Discovery Service		security credential revocations					
Cooperative ITS Credentials Management System		Object Registration and Discovery Service		security credentials					
Cooperative ITS Credentials Management System		Object Registration and Discovery Service		security policy and networking information					
Object Registration and Discovery Service		Cooperative ITS Credentials Management System		device enrollment information					
Object Registration and Discovery Service		Cooperative ITS Credentials Management System		misbehavior report					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Private location and address	Develop an internationally acceptable ITS application specification that defines the operation of a Privacy Protection Gateway.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Center		protected location and address flow					
Privacy Protection Gateway		Center		protected location and address flow					

Solution Name:		(None-Data) - Guaranteed Internet (X.509)			Number of Issues:	1	Total Issue Severity:	32																										
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability																											
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Object registration and discovery	Investigate mechanisms to register and discover objects within the ITS network.		Near-term	Australia, European Union, United States																											
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><th>Source</th><th>Destination</th><th>Flow Name</th></tr><tr><td>Center</td><td>Object Registration and Discovery Service</td><td>object registration</td></tr><tr><td>Connected Vehicle Roadside Equipment</td><td>Object Registration and Discovery Service</td><td>object registration</td></tr><tr><td>Data Distribution System</td><td>Object Registration and Discovery Service</td><td>object registration</td></tr><tr><td>Object Registration and Discovery Service</td><td>Center</td><td>object discovery</td></tr><tr><td>Object Registration and Discovery Service</td><td>Connected Vehicle Roadside Equipment</td><td>object discovery</td></tr><tr><td>Object Registration and Discovery Service</td><td>Data Distribution System</td><td>object discovery</td></tr><tr><td>Object Registration and Discovery Service</td><td>Wide Area Information Disseminator</td><td>object discovery</td></tr><tr><td>Wide Area Information Disseminator</td><td>Object Registration and Discovery Service</td><td>object registration</td></tr></table>								Source	Destination	Flow Name	Center	Object Registration and Discovery Service	object registration	Connected Vehicle Roadside Equipment	Object Registration and Discovery Service	object registration	Data Distribution System	Object Registration and Discovery Service	object registration	Object Registration and Discovery Service	Center	object discovery	Object Registration and Discovery Service	Connected Vehicle Roadside Equipment	object discovery	Object Registration and Discovery Service	Data Distribution System	object discovery	Object Registration and Discovery Service	Wide Area Information Disseminator	object discovery	Wide Area Information Disseminator	Object Registration and Discovery Service	object registration
Source	Destination	Flow Name																																
Center	Object Registration and Discovery Service	object registration																																
Connected Vehicle Roadside Equipment	Object Registration and Discovery Service	object registration																																
Data Distribution System	Object Registration and Discovery Service	object registration																																
Object Registration and Discovery Service	Center	object discovery																																
Object Registration and Discovery Service	Connected Vehicle Roadside Equipment	object discovery																																
Object Registration and Discovery Service	Data Distribution System	object discovery																																
Object Registration and Discovery Service	Wide Area Information Disseminator	object discovery																																
Wide Area Information Disseminator	Object Registration and Discovery Service	object registration																																
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability																											
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Secure installation/update of software	Develop an internationally acceptable standard for the secure installation, update, and validation of software (including application, support, and OS software) on devices. The process should allow a system to determine which devices have been updated and provide a mechanism to define when such updates are allowed, recommended, and required.		Urgent	Australia, European Union, United States																											
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><th>Source</th><th>Destination</th><th>Flow Name</th></tr><tr><td>Center</td><td>Connected Vehicle Roadside Equipment</td><td>RSE application install/upgrade</td></tr><tr><td>Connected Vehicle Roadside Equipment</td><td>Field Support Equipment</td><td>RSE application install/upgrade</td></tr><tr><td>Field Support Equipment</td><td>Connected Vehicle Roadside Equipment</td><td>RSE application install/upgrade</td></tr></table>								Source	Destination	Flow Name	Center	Connected Vehicle Roadside Equipment	RSE application install/upgrade	Connected Vehicle Roadside Equipment	Field Support Equipment	RSE application install/upgrade	Field Support Equipment	Connected Vehicle Roadside Equipment	RSE application install/upgrade															
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Center	Connected Vehicle Roadside Equipment	RSE application install/upgrade																																
Connected Vehicle Roadside Equipment	Field Support Equipment	RSE application install/upgrade																																
Field Support Equipment	Connected Vehicle Roadside Equipment	RSE application install/upgrade																																
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability																											
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Data aggregation	Develop an internationally acceptable ITS application specification for an RSE to aggregate collected data and report the information to interested parties (e.g., centres).		Urgent	Australia, European Union, United States																											
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><th>Source</th><th>Destination</th><th>Flow Name</th></tr><tr><td>Data Distribution System</td><td>Connected Vehicle Roadside Equipment</td><td>situation data collection parameters</td></tr></table>								Source	Destination	Flow Name	Data Distribution System	Connected Vehicle Roadside Equipment	situation data collection parameters																					
Source	Destination	Flow Name																																
Data Distribution System	Connected Vehicle Roadside Equipment	situation data collection parameters																																

Solution Name:		(None-Data) - Guaranteed Internet (X.509)				Number of Issues:	1	Total Issue Severity:	32
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry between a centres (e.g., a Map Update System) and field equipment.				Urgent	Australia, European Union, United States, Japan
Source		Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution							
Destination		Flow Name							
Map Update System		Public Information Device		map updates					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Credentials management system	Implement regional (security) credentials management systems that are interoperable.				Urgent	Australia, European Union, United States
Source		Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution							
Destination		Flow Name							
Cooperative ITS Credentials Management System		Object Registration and Discovery Service		security credential revocations					
Cooperative ITS Credentials Management System		Object Registration and Discovery Service		security credentials					
Cooperative ITS Credentials Management System		Object Registration and Discovery Service		security policy and networking information					
Object Registration and Discovery Service		Cooperative ITS Credentials Management System		device enrollment information					
Object Registration and Discovery Service		Cooperative ITS Credentials Management System		misbehavior report					

Solution Name:		(None-Data) - Guaranteed Mobile Internet (X.509)				Number of Issues:	2	Total Issue Severity:	35																													
This solution is used within the U.S., E.U., and Australia. It combines standards associated with (None-Data) with those for I-M: Guaranteed Mobile Internet (X.509). The (None-Data) standards include an unspecified set of standards at the upper layers. The I-M: Guaranteed Mobile Internet (X.509) standards include lower-layer standards that support secure communications with guaranteed delivery between two entities, either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Intneret connection method.																																						
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability																													
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.		Ultra	Object registration and discovery	Investigate mechanisms to register and discover objects within the ITS network.			Near-term	Australia, European Union, United States																													
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td colspan="1">Source</td><td colspan="3">Destination</td><td colspan="5">Flow Name</td></tr><tr><td colspan="3">Object Registration and Discovery Service</td><td colspan="3">Personal Information Device</td><td colspan="4">object discovery</td></tr><tr><td colspan="3">Object Registration and Discovery Service</td><td colspan="3">Vehicle OBE</td><td colspan="4">object discovery</td></tr></table>										Source	Destination			Flow Name					Object Registration and Discovery Service			Personal Information Device			object discovery				Object Registration and Discovery Service			Vehicle OBE			object discovery			
Source	Destination			Flow Name																																		
Object Registration and Discovery Service			Personal Information Device			object discovery																																
Object Registration and Discovery Service			Vehicle OBE			object discovery																																
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability																													
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.		Ultra	C-V: EU signal priority/preemption	Develop an ITS application specification for a centre to exchange requests and status for signal priority/preemption along a route with a vehicle.			Medium-term	Australia, European Union																													
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td colspan="1">Source</td><td colspan="3">Destination</td><td colspan="5">Flow Name</td></tr><tr><td colspan="3">Emergency Management Center</td><td colspan="3">Emergency Vehicle OBE</td><td colspan="4">green wave information</td></tr></table>										Source	Destination			Flow Name					Emergency Management Center			Emergency Vehicle OBE			green wave information													
Source	Destination			Flow Name																																		
Emergency Management Center			Emergency Vehicle OBE			green wave information																																

Solution Name:		(None-Data) - Guaranteed Mobile Internet (X.509)				Number of Issues:	2	Total Issue Severity:	35
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability	
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).			Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Care Facility		Emergency Vehicle OBE			care facility status				
Care Facility		Emergency Vehicle OBE			medical records				
Emergency Management Center		Emergency Vehicle OBE			green wave information				
Emergency Vehicle OBE		Care Facility			care facility status request				
Emergency Vehicle OBE		Care Facility			medical records request				
Object Registration and Discovery Service		Personal Information Device			object discovery				
Object Registration and Discovery Service		Vehicle OBE			object discovery				

Solution Name:	(None-Data) - Internet (X.509)	Number of Issues:	2	Total Issue Severity:	35
This solution is used within the U.S., E.U., and Australia. It combines standards associated with (None-Data) with those for I-I: Internet (X.509). The (None-Data) standards include an unspecified set of standards at the upper layers. The I-I: Internet (X.509) standards include lower-layer standards that support secure communications between ITS equipment using mainstream Internet security standards (X.509).					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: System monitoring	Develop an internationally acceptable ITS application specification for the Service Monitor System to monitor other centers and support systems and to report issues.	Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Wide Area Information Disseminator		Service Monitor System		support system status		



Solution Name:		(None-Data) - Internet (X.509)				Number of Issues:	2	Total Issue Severity:	35
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for updating maps, roadway geometry, and intersection geometry among centres (e.g., between a Map Update System and a centre).				Urgent	Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
	Source	Destination			Flow Name				
	Center	Map Update System			map update notification				
	Maint and Constr Management Center	Map Update System			current infrastructure restrictions				
	Map Update System	Center			intersection geometry				
	Map Update System	Center			map updates				
	Map Update System	Other Map Update Systems			map update coordination				
	Map Update System	Parking Management System			parking facility geometry				
	Other Map Update Systems	Map Update System			map update coordination				
	Parking Management System	Map Update System			parking facility geometry				
	Traffic Management Center	Map Update System			map update notification				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Develop standard for electronic distribution of traffic regulations	Develop an internationally acceptable standard to enable the provision and management of electronic traffic regulations to enable proper operation of road users as they cross jurisdictional boundaries.				Urgent	Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
	Source	Destination			Flow Name				
	Transportation Information Center	Wide Area Information Disseminator			traffic-related regulations				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Update central map database	Develop an internationally acceptable ITS application specification that defines the rules for updating a central map database, including roadway and intersection geometry, based on real-world data readings from vehicles and transmitted to a map update system.				Medium-term	Australia, European Union, United States, Japan
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
	Source	Destination			Flow Name				
	Connected Vehicle Roadside Equipment	Map Update System			vehicle location data for mapping				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-C: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for updating maps, roadway geometry, and intersection geometry among centres (e.g., between a Map Update System and a centre).				Urgent	Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
	Source	Destination			Flow Name				
	Map Update System	Center			intersection geometry				



Solution Name:	(None-Data) - Local Broadcast Wireless (AU/EU)	Number of Issues:	5	Total Issue Severity:	44
Solution Name:	(None-Data) - Local Broadcast Wireless (AU/EU)	Number of Issues:	5	Total Issue Severity:	44

This solution is used within the E.U., and Australia. It combines standards associated with (None-Data) with those for V-X: Local Broadcast Wireless (AU/EU). The (None-Data) standards include an unspecified set of standards at the upper layers. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Connected Vehicle Roadside Equipment	Personal Information Device	local traveler information
Connected Vehicle Roadside Equipment	Personal Information Device	location correction
Connected Vehicle Roadside Equipment	Vehicle OBE	arriving train information
Connected Vehicle Roadside Equipment	Vehicle OBE	driver display conflict warning
Connected Vehicle Roadside Equipment	Vehicle OBE	local traveler information
Connected Vehicle Roadside Equipment	Vehicle OBE	location correction
Connected Vehicle Roadside Equipment	Vehicle OBE	map updates
Connected Vehicle Roadside Equipment	Vehicle OBE	parking facility geometry
Connected Vehicle Roadside Equipment	Vehicle OBE	rail crossing warning
Connected Vehicle Roadside Equipment	Vehicle OBE	roadway geometry
ITS Roadway Equipment	Maint and Constr Vehicle OBE	roadway advisory radio status
ITS Roadway Equipment	Maint and Constr Vehicle OBE	roadway dynamic signage status
ITS Roadway Equipment	Maint and Constr Vehicle OBE	traffic detector data
ITS Roadway Equipment	Maint and Constr Vehicle OBE	traffic images
Maint and Constr Vehicle OBE	ITS Roadway Equipment	roadway advisory radio data
Maint and Constr Vehicle OBE	ITS Roadway Equipment	roadway dynamic signage data
Maint and Constr Vehicle OBE	ITS Roadway Equipment	traffic detector control
Maint and Constr Vehicle OBE	ITS Roadway Equipment	video surveillance control
Other Vehicle OBEs	Vehicle OBE	vehicle headlight dim request
Other Vehicle OBEs	Vehicle OBE	vehicle road information
Other Vehicle OBEs	Vehicle OBE	vehicle travel time data
Personal Information Device	Connected Vehicle Roadside Equipment	private location and address flow
Vehicle OBE	Connected Vehicle Roadside Equipment	driver display conflict warning
Vehicle OBE	Connected Vehicle Roadside Equipment	driver display snapshots
Vehicle OBE	Connected Vehicle Roadside Equipment	private location and address flow
Vehicle OBE	Connected Vehicle Roadside Equipment	service response
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle profile
Vehicle OBE	Other Vehicle OBEs	vehicle headlight dim request

Solution Name:		(None-Data) - Local Broadcast Wireless (AU/EU)				Number of Issues:	5	Total Issue Severity:	44																																
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability																																
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Vehicle headlight dimming	Develop an ITS application specification for a vehicle to request another vehicle to dim its headlights. NOTE: This analysis should consider whether this information flow is still needed or whether existing market products adequately address this issue.				Urgent	European Union																																
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td colspan="2">Source</td><td colspan="2">Destination</td><td colspan="4">Flow Name</td></tr><tr><td colspan="2">Other Vehicle OBEs</td><td colspan="2">Vehicle OBE</td><td colspan="4">vehicle headlight dim request</td></tr><tr><td colspan="2">Vehicle OBE</td><td colspan="2">Other Vehicle OBEs</td><td colspan="4">vehicle headlight dim request</td></tr></table>										Source		Destination		Flow Name				Other Vehicle OBEs		Vehicle OBE		vehicle headlight dim request				Vehicle OBE		Other Vehicle OBEs		vehicle headlight dim request											
Source		Destination		Flow Name																																					
Other Vehicle OBEs		Vehicle OBE		vehicle headlight dim request																																					
Vehicle OBE		Other Vehicle OBEs		vehicle headlight dim request																																					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability																																
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Message signs	Develop an internationally acceptable ITS application specification for managing message signs for secure communications with proper access control.				Urgent	Australia, European Union, United States																																
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td colspan="2">Source</td><td colspan="2">Destination</td><td colspan="4">Flow Name</td></tr><tr><td colspan="2">ITS Roadway Equipment</td><td colspan="2">Maint and Constr Vehicle OBE</td><td colspan="4">roadway dynamic signage status</td></tr><tr><td colspan="2">Maint and Constr Vehicle OBE</td><td colspan="2">ITS Roadway Equipment</td><td colspan="4">roadway dynamic signage data</td></tr></table>										Source		Destination		Flow Name				ITS Roadway Equipment		Maint and Constr Vehicle OBE		roadway dynamic signage status				Maint and Constr Vehicle OBE		ITS Roadway Equipment		roadway dynamic signage data											
Source		Destination		Flow Name																																					
ITS Roadway Equipment		Maint and Constr Vehicle OBE		roadway dynamic signage status																																					
Maint and Constr Vehicle OBE		ITS Roadway Equipment		roadway dynamic signage data																																					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability																																
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Highway advisory radio	Develop an internationally acceptable ITS application specification for managing highway advisory radios for secure communications with proper access control.				Medium-term	United States																																
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td colspan="2">Source</td><td colspan="2">Destination</td><td colspan="4">Flow Name</td></tr><tr><td colspan="2">ITS Roadway Equipment</td><td colspan="2">Maint and Constr Vehicle OBE</td><td colspan="4">roadway advisory radio status</td></tr><tr><td colspan="2">Maint and Constr Vehicle OBE</td><td colspan="2">ITS Roadway Equipment</td><td colspan="4">roadway advisory radio data</td></tr></table>										Source		Destination		Flow Name				ITS Roadway Equipment		Maint and Constr Vehicle OBE		roadway advisory radio status				Maint and Constr Vehicle OBE		ITS Roadway Equipment		roadway advisory radio data											
Source		Destination		Flow Name																																					
ITS Roadway Equipment		Maint and Constr Vehicle OBE		roadway advisory radio status																																					
Maint and Constr Vehicle OBE		ITS Roadway Equipment		roadway advisory radio data																																					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability																																
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry to a vehicle from a local source.				Urgent	Australia, European Union, United States, Japan																																
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td colspan="2">Source</td><td colspan="2">Destination</td><td colspan="4">Flow Name</td></tr><tr><td colspan="2">Connected Vehicle Roadside Equipment</td><td colspan="2">Vehicle OBE</td><td colspan="4">map updates</td></tr><tr><td colspan="2">Connected Vehicle Roadside Equipment</td><td colspan="2">Vehicle OBE</td><td colspan="4">parking facility geometry</td></tr><tr><td colspan="2">Connected Vehicle Roadside Equipment</td><td colspan="2">Vehicle OBE</td><td colspan="4">roadway geometry</td></tr></table>										Source		Destination		Flow Name				Connected Vehicle Roadside Equipment		Vehicle OBE		map updates				Connected Vehicle Roadside Equipment		Vehicle OBE		parking facility geometry				Connected Vehicle Roadside Equipment		Vehicle OBE		roadway geometry			
Source		Destination		Flow Name																																					
Connected Vehicle Roadside Equipment		Vehicle OBE		map updates																																					
Connected Vehicle Roadside Equipment		Vehicle OBE		parking facility geometry																																					
Connected Vehicle Roadside Equipment		Vehicle OBE		roadway geometry																																					

Solution Name:		(None-Data) - Local Broadcast Wireless (AU/EU)				Number of Issues:	5	Total Issue Severity:	44												
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability												
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Driver display conflicts	Develop an ITS application specification for identifying that a vehicle is displaying the incorrect information to a driver and alerting appropriate entities.				Near-term	Australia, European Union												
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Connected Vehicle Roadside Equipment</td><td>Vehicle OBE</td><td>driver display conflict warning</td></tr><tr><td>Vehicle OBE</td><td>Connected Vehicle Roadside Equipment</td><td>driver display conflict warning</td></tr><tr><td>Vehicle OBE</td><td>Connected Vehicle Roadside Equipment</td><td>driver display snapshots</td></tr></table>										Source	Destination	Flow Name	Connected Vehicle Roadside Equipment	Vehicle OBE	driver display conflict warning	Vehicle OBE	Connected Vehicle Roadside Equipment	driver display conflict warning	Vehicle OBE	Connected Vehicle Roadside Equipment	driver display snapshots
Source	Destination	Flow Name																			
Connected Vehicle Roadside Equipment	Vehicle OBE	driver display conflict warning																			
Vehicle OBE	Connected Vehicle Roadside Equipment	driver display conflict warning																			
Vehicle OBE	Connected Vehicle Roadside Equipment	driver display snapshots																			
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability												
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	V-L: Private location and address	Develop an internationally acceptable ITS application specification that defines the operation of a Privacy Protection Gateway.				Urgent	Australia, European Union, United States												
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Personal Information Device</td><td>Connected Vehicle Roadside Equipment</td><td>private location and address flow</td></tr><tr><td>Vehicle OBE</td><td>Connected Vehicle Roadside Equipment</td><td>private location and address flow</td></tr></table>										Source	Destination	Flow Name	Personal Information Device	Connected Vehicle Roadside Equipment	private location and address flow	Vehicle OBE	Connected Vehicle Roadside Equipment	private location and address flow			
Source	Destination	Flow Name																			
Personal Information Device	Connected Vehicle Roadside Equipment	private location and address flow																			
Vehicle OBE	Connected Vehicle Roadside Equipment	private location and address flow																			
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability												
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Transportation sensor systems	Develop an internationally acceptable ITS application specification for exchanging transportation sensor station data with a management entity that uses the secure centre-to-field protocol.				Urgent	Australia, European Union, United States												
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>ITS Roadway Equipment</td><td>Maint and Constr Vehicle OBE</td><td>traffic detector data</td></tr><tr><td>Maint and Constr Vehicle OBE</td><td>ITS Roadway Equipment</td><td>traffic detector control</td></tr></table>										Source	Destination	Flow Name	ITS Roadway Equipment	Maint and Constr Vehicle OBE	traffic detector data	Maint and Constr Vehicle OBE	ITS Roadway Equipment	traffic detector control			
Source	Destination	Flow Name																			
ITS Roadway Equipment	Maint and Constr Vehicle OBE	traffic detector data																			
Maint and Constr Vehicle OBE	ITS Roadway Equipment	traffic detector control																			
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability												
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Secure and accurate location and time standards	Develop/adopt an internationally acceptable standard/solution for synchronising and continuously maintaining location and time information throughout the ITS environment in a secure and reliable manner with sufficient accuracy (including leap seconds) and confidence.				Urgent	Australia, European Union, United States												
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Connected Vehicle Roadside Equipment</td><td>Personal Information Device</td><td>location correction</td></tr><tr><td>Connected Vehicle Roadside Equipment</td><td>Vehicle OBE</td><td>location correction</td></tr></table>										Source	Destination	Flow Name	Connected Vehicle Roadside Equipment	Personal Information Device	location correction	Connected Vehicle Roadside Equipment	Vehicle OBE	location correction			
Source	Destination	Flow Name																			
Connected Vehicle Roadside Equipment	Personal Information Device	location correction																			
Connected Vehicle Roadside Equipment	Vehicle OBE	location correction																			

Solution Name:	(None-Data) - Local Broadcast Wireless (AU/EU)	Number of Issues:	5	Total Issue Severity:	44
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: CCTV	Develop an internationally acceptable ITS application specification for exchanging CCTV camera data with a management entity that uses the secure centre-to-field protocol.	Medium-term	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
ITS Roadway Equipment	Maint and Constr Vehicle OBE	traffic images
Maint and Constr Vehicle OBE	ITS Roadway Equipment	video surveillance control

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry and associated regulations and restrictions over mobile Internet from a centre to user devices (e.g., a vehicle or personal information device).	Urgent	Australia, European Union, United States, Japan

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Other Vehicle OBEs	Vehicle OBE	vehicle road information

Solution Name:		(None-Data) - Local Broadcast Wireless (AU/EU)			Number of Issues:	5	Total Issue Severity:	44
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).		Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Connected Vehicle Roadside Equipment		Personal Information Device		local traveler information				
Connected Vehicle Roadside Equipment		Personal Information Device		location correction				
Connected Vehicle Roadside Equipment		Vehicle OBE		arriving train information				
Connected Vehicle Roadside Equipment		Vehicle OBE		driver display conflict warning				
Connected Vehicle Roadside Equipment		Vehicle OBE		local traveler information				
Connected Vehicle Roadside Equipment		Vehicle OBE		location correction				
Connected Vehicle Roadside Equipment		Vehicle OBE		map updates				
Connected Vehicle Roadside Equipment		Vehicle OBE		parking facility geometry				
Connected Vehicle Roadside Equipment		Vehicle OBE		rail crossing warning				
Connected Vehicle Roadside Equipment		Vehicle OBE		roadway geometry				
ITS Roadway Equipment		Maint and Constr Vehicle OBE		roadway advisory radio status				
ITS Roadway Equipment		Maint and Constr Vehicle OBE		roadway dynamic signage status				
ITS Roadway Equipment		Maint and Constr Vehicle OBE		traffic detector data				
ITS Roadway Equipment		Maint and Constr Vehicle OBE		traffic images				
Maint and Constr Vehicle OBE		ITS Roadway Equipment		roadway advisory radio data				
Maint and Constr Vehicle OBE		ITS Roadway Equipment		roadway dynamic signage data				
Maint and Constr Vehicle OBE		ITS Roadway Equipment		traffic detector control				
Maint and Constr Vehicle OBE		ITS Roadway Equipment		video surveillance control				
Other Vehicle OBEs		Vehicle OBE		vehicle headlight dim request				
Other Vehicle OBEs		Vehicle OBE		vehicle road information				
Other Vehicle OBEs		Vehicle OBE		vehicle travel time data				
Personal Information Device		Connected Vehicle Roadside Equipment		private location and address flow				
Vehicle OBE		Connected Vehicle Roadside Equipment		driver display conflict warning				
Vehicle OBE		Connected Vehicle Roadside Equipment		driver display snapshots				
Vehicle OBE		Connected Vehicle Roadside Equipment		private location and address flow				
Vehicle OBE		Connected Vehicle Roadside Equipment		service response				
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle profile				
Vehicle OBE		Other Vehicle OBEs		vehicle headlight dim request				

Solution Name:		(None-Data) - Local Broadcast Wireless (AU/EU)			Number of Issues:	5	Total Issue Severity:	44
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.			Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Connected Vehicle Roadside Equipment		Personal Information Device		local traveler information				
Connected Vehicle Roadside Equipment		Personal Information Device		location correction				
Connected Vehicle Roadside Equipment		Vehicle OBE		arriving train information				
Connected Vehicle Roadside Equipment		Vehicle OBE		driver display conflict warning				
Connected Vehicle Roadside Equipment		Vehicle OBE		local traveler information				
Connected Vehicle Roadside Equipment		Vehicle OBE		location correction				
Connected Vehicle Roadside Equipment		Vehicle OBE		map updates				
Connected Vehicle Roadside Equipment		Vehicle OBE		parking facility geometry				
Connected Vehicle Roadside Equipment		Vehicle OBE		rail crossing warning				
Connected Vehicle Roadside Equipment		Vehicle OBE		roadway geometry				
ITS Roadway Equipment		Maint and Constr Vehicle OBE		roadway advisory radio status				
ITS Roadway Equipment		Maint and Constr Vehicle OBE		roadway dynamic signage status				
ITS Roadway Equipment		Maint and Constr Vehicle OBE		traffic detector data				
ITS Roadway Equipment		Maint and Constr Vehicle OBE		traffic images				
Maint and Constr Vehicle OBE		ITS Roadway Equipment		roadway advisory radio data				
Maint and Constr Vehicle OBE		ITS Roadway Equipment		roadway dynamic signage data				
Maint and Constr Vehicle OBE		ITS Roadway Equipment		traffic detector control				
Maint and Constr Vehicle OBE		ITS Roadway Equipment		video surveillance control				
Other Vehicle OBEs		Vehicle OBE		vehicle headlight dim request				
Other Vehicle OBEs		Vehicle OBE		vehicle road information				
Other Vehicle OBEs		Vehicle OBE		vehicle travel time data				
Personal Information Device		Connected Vehicle Roadside Equipment		private location and address flow				
Vehicle OBE		Connected Vehicle Roadside Equipment		driver display conflict warning				
Vehicle OBE		Connected Vehicle Roadside Equipment		driver display snapshots				
Vehicle OBE		Connected Vehicle Roadside Equipment		private location and address flow				
Vehicle OBE		Connected Vehicle Roadside Equipment		service response				
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle profile				
Vehicle OBE		Other Vehicle OBEs		vehicle headlight dim request				

Solution Name:		(None-Data) - Local Broadcast Wireless (AU/EU)				Number of Issues:	5	Total Issue Severity:	44
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	Secure and accurate location and time standards	Develop/adopt an internationally acceptable standard/solution for synchronising and continuously maintaining location and time information throughout the ITS environment in a secure and reliable manner with sufficient accuracy (including leap seconds) and confidence.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Personal Information Device		location correction					
Connected Vehicle Roadside Equipment		Vehicle OBE		location correction					
Solution Name:		(None-Data) - Mobile Internet (X.509)				Number of Issues:	4	Total Issue Severity:	46
This solution is used within the U.S., E.U., and Australia. It combines standards associated with (None-Data) with those for I-M: Mobile Internet (X.509). The (None-Data) standards include an unspecified set of standards at the upper layers. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Intneret connection method.									
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Core authorization - base services	Develop an internationally acceptable standard for the user permission sets, permission request, permission update request, permission request received, and device identification information triples contained within the Core Authorization Service Package.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Personal Information Device		Center		device identification					
Vehicle OBE		Center		device identification					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Core authorization - requests	Develop an internationally acceptable standard for the permission application and permission application receipt information triples contained within the Core Authorization Service Package.				Medium-term	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Center		Personal Information Device		permission application receipt					
Personal Information Device		Center		permission application					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Transportation Information Center		Vehicle OBE		road weather advisories					

Solution Name:		(None-Data) - Mobile Internet (X.509)				Number of Issues:	4	Total Issue Severity:	46																																																		
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability																																																		
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.		Ultra	V-L: Private location and address	Develop an internationally acceptable ITS application specification that defines the operation of a Privacy Protection Gateway.			Urgent	Australia, European Union, United States																																																		
<table><tr><td colspan="10">Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</td></tr><tr><td colspan="2">Source</td><td colspan="3">Destination</td><td colspan="5">Flow Name</td></tr><tr><td colspan="2">Personal Information Device</td><td colspan="3">Privacy Protection Gateway</td><td colspan="5">private location and address flow</td></tr><tr><td colspan="2">Vehicle OBE</td><td colspan="3">Privacy Protection Gateway</td><td colspan="5">private location and address flow</td></tr></table>										Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution										Source		Destination			Flow Name					Personal Information Device		Privacy Protection Gateway			private location and address flow					Vehicle OBE		Privacy Protection Gateway			private location and address flow														
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution																																																											
Source		Destination			Flow Name																																																						
Personal Information Device		Privacy Protection Gateway			private location and address flow																																																						
Vehicle OBE		Privacy Protection Gateway			private location and address flow																																																						
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability																																																		
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.		Ultra	C-V: Fleet management	Develop an ITS application specification for managing fleet vehicles, including managing the location of fleet vehicles such as emergency vehicles and transit vehicles			Medium-term	United States																																																		
<table><tr><td colspan="10">Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</td></tr><tr><td colspan="2">Source</td><td colspan="3">Destination</td><td colspan="5">Flow Name</td></tr><tr><td colspan="2">Emergency Vehicle OBE</td><td colspan="3">Emergency Management Center</td><td colspan="5">emergency vehicle tracking data</td></tr><tr><td colspan="2">Personal Information Device</td><td colspan="3">Service Monitor System</td><td colspan="5">PID status</td></tr><tr><td colspan="2">Vehicle OBE</td><td colspan="3">Service Monitor System</td><td colspan="5">OBE status</td></tr></table>										Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution										Source		Destination			Flow Name					Emergency Vehicle OBE		Emergency Management Center			emergency vehicle tracking data					Personal Information Device		Service Monitor System			PID status					Vehicle OBE		Service Monitor System			OBE status				
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution																																																											
Source		Destination			Flow Name																																																						
Emergency Vehicle OBE		Emergency Management Center			emergency vehicle tracking data																																																						
Personal Information Device		Service Monitor System			PID status																																																						
Vehicle OBE		Service Monitor System			OBE status																																																						
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability																																																		
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.		Ultra	C-V: EU signal priority/preemption	Develop an ITS application specification for a centre to exchange requests and status for signal priority/preemption along a route with a vehicle.			Medium-term	Australia, European Union																																																		
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Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution																																																											
Source		Destination			Flow Name																																																						
Emergency Management Center		Emergency Vehicle OBE			green wave information																																																						
Emergency Vehicle OBE		Emergency Management Center			green wave request																																																						
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability																																																		
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.		Ultra	C-V: Signal operations	Develop an ITS application specification for providing intersection status information to vehicles from a centre for environmental benefits.			Urgent	Australia, European Union																																																		
<table><tr><td colspan="10">Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</td></tr><tr><td colspan="2">Source</td><td colspan="3">Destination</td><td colspan="5">Flow Name</td></tr><tr><td colspan="2">Traffic Management Center</td><td colspan="3">Vehicle OBE</td><td colspan="5">intersection status</td></tr></table>										Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution										Source		Destination			Flow Name					Traffic Management Center		Vehicle OBE			intersection status																								
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution																																																											
Source		Destination			Flow Name																																																						
Traffic Management Center		Vehicle OBE			intersection status																																																						



Solution Name:		(None-Data) - Mobile Internet (X.509)				Number of Issues:	4	Total Issue Severity:	46
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability	
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry and associated regulations and restrictions over mobile Internet from a centre to user devices (e.g., a vehicle or personal information device).			Urgent	Australia, European Union, United States, Japan	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Map Update System		Personal Information Device		map updates					
Map Update System		Vehicle OBE		map updates					
Map Update System		Vehicle OBE		parking facility geometry					
Map Update System		Vehicle OBE		roadway geometry					
Traffic Management Center		Vehicle OBE		vehicle road information					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability	
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Automated lane control data	Develop an internationally acceptable ITS application specification for providing control commands and operating parameters for automated vehicle systems, including platooning operations.			Medium-term	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Traffic Management Center		Vehicle OBE		automated lane control data					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability	
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Develop standard for electronic distribution of traffic regulations	Develop an internationally acceptable standard to enable the provision and management of electronic traffic regulations to enable proper operation of road users as they cross jurisdictional boundaries.			Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Transportation Information Center		Personal Information Device		traffic-related regulations					
Transportation Information Center		Vehicle OBE		traffic-related regulations					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability	
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Work zone status	Develop an ITS application specification for a maintenance and construction vehicle to report and update the status of a work zone to a centre.			Near-term	Australia, European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Maint and Constr Vehicle OBE		Maint and Constr Management Center		work zone status					

Solution Name:		(None-Data) - Mobile Internet (X.509)				Number of Issues:	4	Total Issue Severity:	46									
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability										
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Update central map database	Develop an internationally acceptable ITS application specification that defines the rules for updating a central map database, including roadway and intersection geometry, based on real-world data readings from vehicles and transmitted to a map update system.			Medium-term	Australia, European Union, United States, Japan										
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Source	Destination	Flow Name																
Vehicle OBE	Map Update System	vehicle location and motion for mapping																
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability										
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Transit vehicle schedule management	Develop an ITS application specification for managing transit vehicle schedule performance data from transit vehicles to a centre.			Near-term	Australia, European Union										
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td colspan="1">Source</td><td colspan="1">Destination</td><td colspan="1">Flow Name</td></tr><tr><td colspan="1">Transit Management Center</td><td colspan="1">Transit Vehicle OBE</td><td colspan="1">transit schedule information</td></tr><tr><td colspan="1">Transit Vehicle OBE</td><td colspan="1">Transit Management Center</td><td colspan="1">transit vehicle schedule performance</td></tr></table>										Source	Destination	Flow Name	Transit Management Center	Transit Vehicle OBE	transit schedule information	Transit Vehicle OBE	Transit Management Center	transit vehicle schedule performance
Source	Destination	Flow Name																
Transit Management Center	Transit Vehicle OBE	transit schedule information																
Transit Vehicle OBE	Transit Management Center	transit vehicle schedule performance																
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability										
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Situation data	Develop an internationally acceptable ITS application specification for the use case of distributing collected situation data (e.g., BSMs/CAMs, sensors, probe data, etc.) between vehicles and remote interested parties (e.g., centres).			Urgent	Australia, European Union, United States										
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td colspan="1">Source</td><td colspan="1">Destination</td><td colspan="1">Flow Name</td></tr><tr><td colspan="1">Vehicle OBE</td><td colspan="1">Data Distribution System</td><td colspan="1">vehicle situation data</td></tr></table>										Source	Destination	Flow Name	Vehicle OBE	Data Distribution System	vehicle situation data			
Source	Destination	Flow Name																
Vehicle OBE	Data Distribution System	vehicle situation data																
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability										
Data not defined (high)	Required data elements are not defined.	High	C-V: Fleet management	Develop an ITS application specification for managing fleet vehicles, including managing the location of fleet vehicles such as emergency vehicles and transit vehicles			Medium-term	United States										
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td colspan="1">Source</td><td colspan="1">Destination</td><td colspan="1">Flow Name</td></tr><tr><td colspan="1">Emergency Vehicle OBE</td><td colspan="1">Emergency Management Center</td><td colspan="1">emergency vehicle tracking data</td></tr></table>										Source	Destination	Flow Name	Emergency Vehicle OBE	Emergency Management Center	emergency vehicle tracking data			
Source	Destination	Flow Name																
Emergency Vehicle OBE	Emergency Management Center	emergency vehicle tracking data																
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability										
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: Fleet management	Develop an ITS application specification for managing fleet vehicles, including managing the location of fleet vehicles such as emergency vehicles and transit vehicles			Medium-term	United States										
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td colspan="1">Source</td><td colspan="1">Destination</td><td colspan="1">Flow Name</td></tr><tr><td colspan="1">Emergency Vehicle OBE</td><td colspan="1">Emergency Management Center</td><td colspan="1">emergency vehicle tracking data</td></tr></table>										Source	Destination	Flow Name	Emergency Vehicle OBE	Emergency Management Center	emergency vehicle tracking data			
Source	Destination	Flow Name																
Emergency Vehicle OBE	Emergency Management Center	emergency vehicle tracking data																

Solution Name:		(None-Data) - Mobile Internet (X.509)				Number of Issues:	4	Total Issue Severity:	46
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: Signal operations	Develop an ITS application specification for providing intersection status information to vehicles from a centre for environmental benefits.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Traffic Management Center		Vehicle OBE		intersection status					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: Update central map database	Develop an internationally acceptable ITS application specification that defines the rules for updating a central map database, including roadway and intersection geometry, based on real-world data readings from vehicles and transmitted to a map update system.				Medium-term	Australia, European Union, United States, Japan
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Vehicle OBE		Map Update System		vehicle location and motion for mapping					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Identifier registry does not exist	The standard defines a field which requires a globally unique identifier, but no registration authority exists to assign these values.	Medium	Identifier registry	Implement a centralised identifier registry network that ensures the assignment of globally unique C-ITS identifiers.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Personal Information Device		Center		device identification					
Vehicle OBE		Center		device identification					
Solution Name:		(None-Data) - ODG-OCIT-C				Number of Issues:	3	Total Issue Severity:	38
This solution is used within the European Union. It combines standards associated with (None-Data) with those for C-C: ODG-OCIT-C. The (None-Data) standards include an unspecified set of standards at the upper layers. The C-C: ODG-OCIT-C standards include lower-layer ODG proprietary protocol used within the EU for road traffic data exchange between central stations									
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.  Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Cellular Communications Provider		Traffic Management Center		comm-derived travel time data					
Emergency Management Center		Traffic Management Center		emergency traffic control request					
Intermodal Terminal		Traffic Management Center		intermodal freight event information					

Solution Name:		(None-Data) - ODG-OCIT-C			Number of Issues:	3	Total Issue Severity:	38
	Traffic Management Center		Emergency Management Center		emergency traffic control information			
	Traffic Management Center		Intermodal Terminal		intermodal freight traffic confirmation			
	Traffic Management Center		Map Update System		map update notification			
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: EU emergency traffic control	Update DATEX to support the provision of emergency traffic control information with a complete application specification.		Near-term	Australia, European Union	
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution							
	Source		Destination		Flow Name			
	Emergency Management Center		Traffic Management Center		emergency traffic control request			
Traffic Management Center		Emergency Management Center		emergency traffic control information				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe		Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for updating maps, roadway geometry, and intersection geometry among centres (e.g., between a Map Update System and a centre).		Urgent		Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution							
	Source		Destination		Flow Name			
	Traffic Management Center		Map Update System		map update notification			
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe		Applicability
Not an open standard	The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Medium	C-C: Secure communications	Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.  Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).		Urgent		Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution							
	Source		Destination		Flow Name			
	Cellular Communications Provider		Traffic Management Center		comm-derived travel time data			
	Emergency Management Center		Traffic Management Center		emergency traffic control request			
	Intermodal Terminal		Traffic Management Center		intermodal freight event information			
	Traffic Management Center		Emergency Management Center		emergency traffic control information			
	Traffic Management Center		Intermodal Terminal		intermodal freight traffic confirmation			
	Traffic Management Center		Map Update System		map update notification			
Solution Name:		(None-Data) - ODG-OCIT-O			Number of Issues:	3	Total Issue Severity:	43
This solution is used within the European Union. It combines an undefined set of upper-layer standards with those for I-F: ODG-OCIT-O. The I-F: ODG-OCIT-O standards include lower-layer ODG proprietary, published protocol used within the EU for road traffic data exchange between central stations and field devices								

Solution Name:	(None-Data) - ODG-OCIT-O	Number of Issues:	3	Total Issue Severity:	43
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security not provided	The solution does not provide any significant security and a communications link using this solution is easily hacked.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Connected Vehicle Roadside Equipment	ITS Roadway Equipment	signal priority service request
Connected Vehicle Roadside Equipment	Traffic Management Center	traffic situation data
ITS Roadway Equipment	Other ITS Roadway Equipment	signal control data
ITS Roadway Equipment	Traffic Management Center	roadway warning system status
ITS Roadway Equipment	Traffic Management Center	traffic detector data
Other ITS Roadway Equipment	ITS Roadway Equipment	signal control data
Traffic Management Center	ITS Roadway Equipment	traffic detector control

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Signal control	Develop an internationally acceptable ITS application specification for the interface between a traffic signal controller and a roadside station to exchange raw data related to the SPaT, SRM, and SSM using the secure centre-to-field protocol.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Connected Vehicle Roadside Equipment	ITS Roadway Equipment	signal priority service request

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Message signs	Develop an internationally acceptable ITS application specification for managing message signs for secure communications with proper access control.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
ITS Roadway Equipment	Traffic Management Center	roadway warning system status

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Transportation sensor systems	Develop an internationally acceptable ITS application specification for exchanging transportation sensor station data with a management entity that uses the secure centre-to-field protocol.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
ITS Roadway Equipment	Traffic Management Center	traffic detector data
Traffic Management Center	ITS Roadway Equipment	traffic detector control

<b>Solution Name:</b>	<b>(None-Data) - ODG-OCIT-O</b>	<b>Number of Issues:</b>	3	<b>Total Issue Severity:</b>	43
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Data aggregation	Develop an internationally acceptable ITS application specification for an RSE to aggregate collected data and report the information to interested parties (e.g., centres).	Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Connected Vehicle Roadside Equipment		Traffic Management Center		traffic situation data		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: EU signal operations	Develop an ITS application specification for exchanging configuration, plans, status, and commands for signal control and signal systems using the secure centre-to-field protocol.	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
ITS Roadway Equipment		Other ITS Roadway Equipment		signal control data		
Other ITS Roadway Equipment		ITS Roadway Equipment		signal control data		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Not an open standard	The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Medium	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Connected Vehicle Roadside Equipment		ITS Roadway Equipment		signal priority service request		
Connected Vehicle Roadside Equipment		Traffic Management Center		traffic situation data		
ITS Roadway Equipment		Other ITS Roadway Equipment		signal control data		
ITS Roadway Equipment		Traffic Management Center		roadway warning system status		
ITS Roadway Equipment		Traffic Management Center		traffic detector data		
Other ITS Roadway Equipment		ITS Roadway Equipment		signal control data		
Traffic Management Center		ITS Roadway Equipment		traffic detector control		

<b>Solution Name:</b>	<b>(None-Data) - UTMCM</b>	<b>Number of Issues:</b>	2	<b>Total Issue Severity:</b>	35
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This solution is used within the European Union. It combines an undefined set of upper-layer standards with those for I-F: UTMCM. The I-F: UTMCM standards include lower-layer standards that support secure centre-to-field and field-to-field communications using simple network management protocol (SNMPv2); while this standard offers some security capabilities, implementations are strongly encouraged to use SNMPv3 to ensure adequate security.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States

Solution Name:		(None-Data) - UTMCI			Number of Issues:		2	Total Issue Severity:		35
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
	Source		Destination			Flow Name				
	Connected Vehicle Roadside Equipment		Traffic Management Center			traffic situation data				
Issue		Issue Description		Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Data profile not defined		Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.		Ultra	I-F: Data aggregation	Develop an internationally acceptable ITS application specification for an RSE to aggregate collected data and report the information to interested parties (e.g., centres).			Urgent	Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
	Source		Destination			Flow Name				
	Connected Vehicle Roadside Equipment		Traffic Management Center			traffic situation data				

Solution Name:	(None-Data) - Wide Area Broadcast (Upper)				Number of Issues:	2	Total Issue Severity:	33
This solution is used within the U.S., E.U., and Australia. It combines standards associated with (None-Data) with those for C-X: Wide Area Broadcast (Upper). The (None-Data) standards include an unspecified set of standards at the upper layers. The C-X: Wide Area Broadcast (Upper) standards include lower-layer standards that support one entity broadcasting information to all wireless devices over an area that covers at least a metropolitan area without any expectation of acknowledgement or response; security is provided by the upper-layers.								
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability		
Ubiquitous broadcast technology	With the continual enhancement of broadcast technologies and a mixture of free and subscriber-based systems, it is difficult to identify any single technology that can be used to reliably reach the bulk of drivers in a timely manner.	Low	C-V: Wide-area broadcast subnet and hybrid communications	Standardise one or more mechanisms by which wide-area broadcast messages can be received by a defined minimum percentage of transportation users that are currently operating within a specified geographic area. The required minimum percentage is dependent on the type of information being transmitted and will need to be determined by the expert community. Some alerts (e.g., tornado warnings) will require near 100% reception, while other messages (e.g., road works ahead) may require significantly lower minimum percentages. The minimum percentage may be made up with a variety of technologies using hybrid communications and the ITS station architecture.	Urgent	Australia, European Union, United States		
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Transportation Information Center		Personal Information Device		emergency traveler information				
Transportation Information Center		Vehicle OBE		emergency traveler information				
Wide Area Information Disseminator		Personal Information Device		traffic-related regulations				
Wide Area Information Disseminator		Vehicle OBE		traffic-related regulations				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability		
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	Develop standard for electronic distribution of traffic regulations	Develop an internationally acceptable standard to enable the provision and management of electronic traffic regulations to enable proper operation of road users as they cross jurisdictional boundaries.	Urgent	Australia, European Union, United States		
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Wide Area Information Disseminator		Personal Information Device		traffic-related regulations				
Wide Area Information Disseminator		Vehicle OBE		traffic-related regulations				



<b>Solution Name:</b>	[Null] - Local Broadcast Wireless (AU/EU)	<b>Number of Issues:</b>	3	<b>Total Issue Severity:</b>	9
information flow is handled by the lower layers and the communication profile contains all of the standards required to handle the flow). The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Connected Vehicle Roadside Equipment		Vehicle OBE		service advertisement		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Connected Vehicle Roadside Equipment		Vehicle OBE		service advertisement		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTF/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTF/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Connected Vehicle Roadside Equipment		Vehicle OBE		service advertisement		

<b>Solution Name:</b>	EU: CA Service - BTP/GeoNetworking/G5	<b>Number of Issues:</b>	8	<b>Total Issue Severity:</b>	27
This solution is used within the E.U., and Australia. It combines standards associated with EU: CA Service with those for V-X: BTP/GeoNetworking/G5. The EU: CA Service standards include upper-layer standards required to implement V2x safety situation awareness information flows. The V-X: BTP/GeoNetworking/G5 standards include lower-layer standards that support broadcast, near constant, low latency vehicle-to-vehicle and vehicle-to-infrastructure communications using the ETSI GeoNetworking Bundle over the 5.9GHz spectrum.					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Commercial Vehicle OBE		Connected Vehicle Roadside Equipment		local signal priority request		
Commercial Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle location and motion		



Solution Name:		EU: CA Service - BTP/GeoNetworking/G5		Number of Issues:	8	Total Issue Severity:	27
	Commercial Vehicle OBE	Vehicle OBE	special vehicle type alert				
	Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request				
	Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion				
	Emergency Vehicle OBE	Vehicle OBE	special vehicle type alert				
	Maint and Constr Vehicle OBE	Vehicle OBE	special vehicle type alert				
	Other Vehicle OBEs	Connected Vehicle Roadside Equipment	vehicle location and motion				
	Other Vehicle OBEs	Vehicle OBE	vehicle control event				
	Other Vehicle OBEs	Vehicle OBE	vehicle location and motion				
	Transit Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion				
	Transit Vehicle OBE	Vehicle OBE	special vehicle type alert				
	Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle control event				
	Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle ID				
	Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion				
	Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion for surveillance				
	Vehicle OBE	Other Vehicle OBEs	vehicle control event				
	Vehicle OBE	Other Vehicle OBEs	vehicle location and motion				
	Vehicle OBE	Personal Information Device	vehicle location and motion				

Solution Name:		EU: CA Service - BTP/GeoNetworking/G5				Number of Issues:	8	Total Issue Severity:	27
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Commercial Vehicle OBE		Connected Vehicle Roadside Equipment			local signal priority request				
Commercial Vehicle OBE		Connected Vehicle Roadside Equipment			vehicle location and motion				
Commercial Vehicle OBE		Vehicle OBE			special vehicle type alert				
Emergency Vehicle OBE		Connected Vehicle Roadside Equipment			local signal preemption request				
Emergency Vehicle OBE		Connected Vehicle Roadside Equipment			vehicle location and motion				
Emergency Vehicle OBE		Vehicle OBE			special vehicle type alert				
Maint and Constr Vehicle OBE		Vehicle OBE			special vehicle type alert				
Other Vehicle OBEs		Connected Vehicle Roadside Equipment			vehicle location and motion				
Other Vehicle OBEs		Vehicle OBE			vehicle control event				
Other Vehicle OBEs		Vehicle OBE			vehicle location and motion				
Transit Vehicle OBE		Connected Vehicle Roadside Equipment			vehicle location and motion				
Transit Vehicle OBE		Vehicle OBE			special vehicle type alert				
Vehicle OBE		Connected Vehicle Roadside Equipment			vehicle control event				
Vehicle OBE		Connected Vehicle Roadside Equipment			vehicle ID				
Vehicle OBE		Connected Vehicle Roadside Equipment			vehicle location and motion				
Vehicle OBE		Connected Vehicle Roadside Equipment			vehicle location and motion for surveillance				
Vehicle OBE		Other Vehicle OBEs			vehicle control event				
Vehicle OBE		Other Vehicle OBEs			vehicle location and motion				
Vehicle OBE		Personal Information Device			vehicle location and motion				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data not fully defined (medium)	Some of the data elements for this information flow are not fully defined.	Medium	V-L: Trailer information for vehicle location and motion	Standardise the mechanism for the BSM, CAM, and DENM to accurately convey geometric properties related to articulated vehicles.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Emergency Vehicle OBE		Connected Vehicle Roadside Equipment			vehicle location and motion				
Other Vehicle OBEs		Vehicle OBE			vehicle location and motion				
Transit Vehicle OBE		Connected Vehicle Roadside Equipment			vehicle location and motion				
Vehicle OBE		Connected Vehicle Roadside Equipment			vehicle location and motion				
Vehicle OBE		Connected Vehicle Roadside Equipment			vehicle location and motion for surveillance				
Vehicle OBE		Other Vehicle OBEs			vehicle location and motion				

Solution Name:		EU: CA Service - BTP/GeoNetworking/G5			Number of Issues:	8	Total Issue Severity:	27
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: CAM and DENM	Standardise on a single solution for providing vehicle event information; currently this information can be transmitted using CAM or DENM.			Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Commercial Vehicle OBE		Vehicle OBE		special vehicle type alert				
Emergency Vehicle OBE		Vehicle OBE		special vehicle type alert				
Maint and Constr Vehicle OBE		Vehicle OBE		special vehicle type alert				
Other Vehicle OBEs		Vehicle OBE		vehicle control event				
Transit Vehicle OBE		Vehicle OBE		special vehicle type alert				
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle control event				
Vehicle OBE		Other Vehicle OBEs		vehicle control event				

Solution Name:	EU: CA Service - BTP/GeoNetworking/G5	Number of Issues:	8	Total Issue Severity:	27
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Commercial Vehicle OBE	Connected Vehicle Roadside Equipment	local signal priority request
Commercial Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion
Commercial Vehicle OBE	Vehicle OBE	special vehicle type alert
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion
Emergency Vehicle OBE	Vehicle OBE	special vehicle type alert
Maint and Constr Vehicle OBE	Vehicle OBE	special vehicle type alert
Other Vehicle OBEs	Connected Vehicle Roadside Equipment	vehicle location and motion
Other Vehicle OBEs	Vehicle OBE	vehicle control event
Other Vehicle OBEs	Vehicle OBE	vehicle location and motion
Transit Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion
Transit Vehicle OBE	Vehicle OBE	special vehicle type alert
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle control event
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle ID
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion for surveillance
Vehicle OBE	Other Vehicle OBEs	vehicle control event
Vehicle OBE	Other Vehicle OBEs	vehicle location and motion
Vehicle OBE	Personal Information Device	vehicle location and motion

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: CAM and SRM	Standardise on a single solution for requesting signal priority; currently this request can be transmitted using CAM or SRM.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Commercial Vehicle OBE	Connected Vehicle Roadside Equipment	local signal priority request
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request

Solution Name:		EU: CA Service - BTP/GeoNetworking/G5			Number of Issues:	8	Total Issue Severity:	27
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Use case not considered in design (critical)	While the indicated standards nominally address the information flow, the design details may not meet performance or other requirements because this particular use case was not the focus of the design effort.	High	V-L: Special vehicle alert	Develop an internationally acceptable ITS application specification for sending special vehicle alerts.		Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Commercial Vehicle OBE		Vehicle OBE		special vehicle type alert				
Emergency Vehicle OBE		Vehicle OBE		special vehicle type alert				
Maint and Constr Vehicle OBE		Vehicle OBE		special vehicle type alert				
Transit Vehicle OBE		Vehicle OBE		special vehicle type alert				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Protocol features partly not applicable in the given context	A feature of the protocol is not fully applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9 GHz channels.	Low	V-L: GeoNetworking	Determine how to implement GeoNetworking without unduly flooding the network and, if feasible, prove out concept.		Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Commercial Vehicle OBE		Connected Vehicle Roadside Equipment		local signal priority request				
Commercial Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle location and motion				
Commercial Vehicle OBE		Vehicle OBE		special vehicle type alert				
Emergency Vehicle OBE		Connected Vehicle Roadside Equipment		local signal preemption request				
Emergency Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle location and motion				
Emergency Vehicle OBE		Vehicle OBE		special vehicle type alert				
Maint and Constr Vehicle OBE		Vehicle OBE		special vehicle type alert				
Other Vehicle OBEs		Connected Vehicle Roadside Equipment		vehicle location and motion				
Other Vehicle OBEs		Vehicle OBE		vehicle control event				
Other Vehicle OBEs		Vehicle OBE		vehicle location and motion				
Transit Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle location and motion				
Transit Vehicle OBE		Vehicle OBE		special vehicle type alert				
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle control event				
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle ID				
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle location and motion				
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle location and motion for surveillance				
Vehicle OBE		Other Vehicle OBEs		vehicle control event				
Vehicle OBE		Other Vehicle OBEs		vehicle location and motion				
Vehicle OBE		Personal Information Device		vehicle location and motion				

Solution Name:	EU: CA Service - BTP/GeoNetworking/G5	Number of Issues:	8	Total Issue Severity:	27
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: EU signal priority	Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source	Destination		Flow Name			
Commercial Vehicle OBE	Connected Vehicle Roadside Equipment		local signal priority request			
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment		local signal preemption request			

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Special vehicle alert	Develop an internationally acceptable ITS application specification for sending special vehicle alerts.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source	Destination		Flow Name			
Commercial Vehicle OBE	Vehicle OBE		special vehicle type alert			
Maint and Constr Vehicle OBE	Vehicle OBE		special vehicle type alert			
Transit Vehicle OBE	Vehicle OBE		special vehicle type alert			

Solution Name:	EU: CA Service - BTP/GeoNetworking/G5	Number of Issues:	8	Total Issue Severity:	27
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: CAM	Develop an internationally acceptable ITS application specification for CAM for each use case where it applies and when the CAM should include optional fields for each condition.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution			
Source	Destination	Flow Name	
Commercial Vehicle OBE	Connected Vehicle Roadside Equipment	local signal priority request	
Commercial Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion	
Commercial Vehicle OBE	Vehicle OBE	special vehicle type alert	
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request	
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion	
Emergency Vehicle OBE	Vehicle OBE	special vehicle type alert	
Maint and Constr Vehicle OBE	Vehicle OBE	special vehicle type alert	
Other Vehicle OBEs	Connected Vehicle Roadside Equipment	vehicle location and motion	
Other Vehicle OBEs	Vehicle OBE	vehicle control event	
Other Vehicle OBEs	Vehicle OBE	vehicle location and motion	
Transit Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion	
Transit Vehicle OBE	Vehicle OBE	special vehicle type alert	
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle control event	
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle ID	
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion	
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion for surveillance	
Vehicle OBE	Other Vehicle OBEs	vehicle control event	
Vehicle OBE	Other Vehicle OBEs	vehicle location and motion	
Vehicle OBE	Personal Information Device	vehicle location and motion	

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: EU signal priority	Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution			
Source	Destination	Flow Name	
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request	

Solution Name:	EU: CA Service - CEN 5.8Ghz DSRC	Number of Issues:	1	Total Issue Severity:	3
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This solution is used within the European Union. It combines standards associated with EU: CA Service with those for V-X: CEN 5.8Ghz DSRC. The EU: CA Service standards include upper-layer standards required to implement V2x safety situation

<b>Solution Name:</b>	<b>EU: CA Service - CEN 5.8Ghz DSRC</b>	<b>Number of Issues:</b>	1	<b>Total Issue Severity:</b>	3
awareness information flows. The V-X: CEN 5.8Ghz DSRC standards include lower-layer standards that are compliant with ISO 21217 with the complication that remote tachographs are based on the CEN-DSRC at 5.8 GHz.					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: CAM	Develop an internationally acceptable ITS application specification for CAM for each use case where it applies and when the CAM should include optional fields for each condition.	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Commercial Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle location and motion		

<b>Solution Name:</b>	<b>EU: CA Service - FNTF/M5</b>	<b>Number of Issues:</b>	6	<b>Total Issue Severity:</b>	23
This solution is used within the E.U., and Australia. It combines standards associated with EU: CA Service with those for V-X: FNTF/M5. The EU: CA Service standards include upper-layer standards required to implement V2x safety situation awareness information flows. The V-X: FNTF/M5 standards include lower-layer standards that support connectionless, broadcast and unicast, near constant, ultra-low latency vehicle-to-any communications within ~300m using Fast Network Transport Profile (FNTF) over the 5 GHz spectrum as allocated within a region. The broadcast mode is interoperable with WAVE WSMP. The M5 radio of this profile can receive ITS G5 frames.					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination		Flow Name		
	Commercial Vehicle OBE	Connected Vehicle Roadside Equipment		local signal priority request		
	Commercial Vehicle OBE	Connected Vehicle Roadside Equipment		vehicle location and motion		
	Commercial Vehicle OBE	Vehicle OBE		special vehicle type alert		
	Emergency Vehicle OBE	Connected Vehicle Roadside Equipment		local signal preemption request		
	Emergency Vehicle OBE	Connected Vehicle Roadside Equipment		vehicle location and motion		
	Emergency Vehicle OBE	Vehicle OBE		special vehicle type alert		
	Maint and Constr Vehicle OBE	Vehicle OBE		special vehicle type alert		
	Other Vehicle OBEs	Connected Vehicle Roadside Equipment		vehicle location and motion		
	Other Vehicle OBEs	Vehicle OBE		vehicle control event		
	Other Vehicle OBEs	Vehicle OBE		vehicle location and motion		
	Transit Vehicle OBE	Connected Vehicle Roadside Equipment		vehicle location and motion		
	Transit Vehicle OBE	Vehicle OBE		special vehicle type alert		
	Vehicle OBE	Connected Vehicle Roadside Equipment		vehicle control event		
	Vehicle OBE	Connected Vehicle Roadside Equipment		vehicle ID		
	Vehicle OBE	Connected Vehicle Roadside Equipment		vehicle location and motion		
	Vehicle OBE	Connected Vehicle Roadside Equipment		vehicle location and motion for surveillance		
	Vehicle OBE	Other Vehicle OBEs		vehicle control event		



Solution Name:		EU: CA Service - FNTF/M5			Number of Issues:	6	Total Issue Severity:	23
Vehicle OBE		Other Vehicle OBEs			vehicle location and motion			
Vehicle OBE		Personal Information Device			vehicle location and motion			
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Data not fully defined (medium)	Some of the data elements for this information flow are not fully defined.	Medium	V-L: Trailer information for vehicle location and motion	Standardise the mechanism for the BSM, CAM, and DENM to accurately convey geometric properties related to articulated vehicles.		Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Emergency Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle location and motion				
Other Vehicle OBEs		Vehicle OBE		vehicle location and motion				
Transit Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle location and motion				
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle location and motion				
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle location and motion for surveillance				
Vehicle OBE		Other Vehicle OBEs		vehicle location and motion				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: CAM and DENM	Standardise on a single solution for providing vehicle event information; currently this information can be transmitted using CAM or DENM.		Urgent	Australia, European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Commercial Vehicle OBE		Vehicle OBE		special vehicle type alert				
Emergency Vehicle OBE		Vehicle OBE		special vehicle type alert				
Maint and Constr Vehicle OBE		Vehicle OBE		special vehicle type alert				
Other Vehicle OBEs		Vehicle OBE		vehicle control event				
Transit Vehicle OBE		Vehicle OBE		special vehicle type alert				
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle control event				
Vehicle OBE		Other Vehicle OBEs		vehicle control event				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: CAM and SRM	Standardise on a single solution for requesting signal priority; currently this request can be transmitted using CAM or SRM.		Urgent	Australia, European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Commercial Vehicle OBE		Connected Vehicle Roadside Equipment		local signal priority request				
Emergency Vehicle OBE		Connected Vehicle Roadside Equipment		local signal preemption request				

Solution Name:		EU: CA Service - FNTF/M5				Number of Issues:	6	Total Issue Severity:	23
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTF/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTF/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Commercial Vehicle OBE		Connected Vehicle Roadside Equipment		local signal priority request					
Commercial Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle location and motion					
Commercial Vehicle OBE		Vehicle OBE		special vehicle type alert					
Emergency Vehicle OBE		Connected Vehicle Roadside Equipment		local signal preemption request					
Emergency Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle location and motion					
Emergency Vehicle OBE		Vehicle OBE		special vehicle type alert					
Maint and Constr Vehicle OBE		Vehicle OBE		special vehicle type alert					
Other Vehicle OBEs		Connected Vehicle Roadside Equipment		vehicle location and motion					
Other Vehicle OBEs		Vehicle OBE		vehicle control event					
Other Vehicle OBEs		Vehicle OBE		vehicle location and motion					
Transit Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle location and motion					
Transit Vehicle OBE		Vehicle OBE		special vehicle type alert					
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle control event					
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle ID					
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle location and motion					
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle location and motion for surveillance					
Vehicle OBE		Other Vehicle OBEs		vehicle control event					
Vehicle OBE		Other Vehicle OBEs		vehicle location and motion					
Vehicle OBE		Personal Information Device		vehicle location and motion					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Use case not considered in design (critical)	While the indicated standards nominally address the information flow, the design details may not meet performance or other requirements because this particular use case was not the focus of the design effort.	High	V-L: Special vehicle alert	Develop an internationally acceptable ITS application specification for sending special vehicle alerts.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Commercial Vehicle OBE		Vehicle OBE		special vehicle type alert					
Emergency Vehicle OBE		Vehicle OBE		special vehicle type alert					
Maint and Constr Vehicle OBE		Vehicle OBE		special vehicle type alert					
Transit Vehicle OBE		Vehicle OBE		special vehicle type alert					

Solution Name:	EU: CA Service - FNTP/M5	Number of Issues:	6	Total Issue Severity:	23
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Special vehicle alert	Develop an internationally acceptable ITS application specification for sending special vehicle alerts.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Commercial Vehicle OBE	Vehicle OBE	special vehicle type alert
Maint and Constr Vehicle OBE	Vehicle OBE	special vehicle type alert
Transit Vehicle OBE	Vehicle OBE	special vehicle type alert

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: EU signal priority	Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Commercial Vehicle OBE	Connected Vehicle Roadside Equipment	local signal priority request
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request

<b>Solution Name:</b>	<b>EU: CA Service - FNTF/M5</b>	<b>Number of Issues:</b>	6	<b>Total Issue Severity:</b>	23
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: CAM	Develop an internationally acceptable ITS application specification for CAM for each use case where it applies and when the CAM should include optional fields for each condition.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source	Destination		Flow Name			
Commercial Vehicle OBE	Connected Vehicle Roadside Equipment		local signal priority request			
Commercial Vehicle OBE	Connected Vehicle Roadside Equipment		vehicle location and motion			
Commercial Vehicle OBE	Vehicle OBE		special vehicle type alert			
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment		local signal preemption request			
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment		vehicle location and motion			
Emergency Vehicle OBE	Vehicle OBE		special vehicle type alert			
Maint and Constr Vehicle OBE	Vehicle OBE		special vehicle type alert			
Other Vehicle OBEs	Connected Vehicle Roadside Equipment		vehicle location and motion			
Other Vehicle OBEs	Vehicle OBE		vehicle control event			
Other Vehicle OBEs	Vehicle OBE		vehicle location and motion			
Transit Vehicle OBE	Connected Vehicle Roadside Equipment		vehicle location and motion			
Transit Vehicle OBE	Vehicle OBE		special vehicle type alert			
Vehicle OBE	Connected Vehicle Roadside Equipment		vehicle control event			
Vehicle OBE	Connected Vehicle Roadside Equipment		vehicle ID			
Vehicle OBE	Connected Vehicle Roadside Equipment		vehicle location and motion			
Vehicle OBE	Connected Vehicle Roadside Equipment		vehicle location and motion for surveillance			
Vehicle OBE	Other Vehicle OBEs		vehicle control event			
Vehicle OBE	Other Vehicle OBEs		vehicle location and motion			
Vehicle OBE	Personal Information Device		vehicle location and motion			

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: EU signal priority	Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source	Destination		Flow Name			
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment		local signal preemption request			

<b>Solution Name:</b>	<b>EU: CA Service - Local Broadcast Wireless (AU/EU)</b>	<b>Number of Issues:</b>	6	<b>Total Issue Severity:</b>	18
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This solution is used within the E.U., and Australia. It combines standards associated with EU: CA Service with those for V-X: Local Broadcast Wireless (AU/EU). The EU: CA Service standards include upper-layer standards required to implement V2x

Solution Name:	EU: CA Service - Local Broadcast Wireless (AU/EU)	Number of Issues:	6	Total Issue Severity:	18
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safety situation awareness information flows. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion for surveillance

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution	
Source	Flow Name
Emergency Vehicle OBE	local signal preemption request
Vehicle OBE	vehicle location and motion for surveillance

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data not fully defined (medium)	Some of the data elements for this information flow are not fully defined.	Medium	V-L: Trailer information for vehicle location and motion	Standardise the mechanism for the BSM, CAM, and DENM to accurately convey geometric properties related to articulated vehicles.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion for surveillance

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTF/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTF/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution	
Source	Flow Name
Emergency Vehicle OBE	local signal preemption request
Vehicle OBE	vehicle location and motion for surveillance

Solution Name:		EU: CA Service - Local Broadcast Wireless (AU/EU)				Number of Issues:	6	Total Issue Severity:	18									
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability									
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: CAM and SRM	Standardise on a single solution for requesting signal priority; currently this request can be transmitted using CAM or SRM.				Urgent	Australia, European Union									
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Emergency Vehicle OBE</td><td>Connected Vehicle Roadside Equipment</td><td>local signal preemption request</td></tr></table>									Source	Destination	Flow Name	Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request				
Source	Destination	Flow Name																
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request																
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability									
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: EU signal priority	Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles.				Urgent	Australia, European Union									
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Emergency Vehicle OBE</td><td>Connected Vehicle Roadside Equipment</td><td>local signal preemption request</td></tr></table>									Source	Destination	Flow Name	Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request				
Source	Destination	Flow Name																
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request																
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability									
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: CAM	Develop an internationally acceptable ITS application specification for CAM for each use case where it applies and when the CAM should include optional fields for each condition.				Urgent	Australia, European Union									
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Emergency Vehicle OBE</td><td>Connected Vehicle Roadside Equipment</td><td>local signal preemption request</td></tr><tr><td>Vehicle OBE</td><td>Connected Vehicle Roadside Equipment</td><td>vehicle location and motion for surveillance</td></tr></table>									Source	Destination	Flow Name	Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request	Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion for surveillance	
Source	Destination	Flow Name																
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request																
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle location and motion for surveillance																
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability									
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: EU signal priority	Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles.				Urgent	Australia, European Union									
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Emergency Vehicle OBE</td><td>Connected Vehicle Roadside Equipment</td><td>local signal preemption request</td></tr></table>									Source	Destination	Flow Name	Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request				
Source	Destination	Flow Name																
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request																

Solution Name:	EU: CA Service - Mobile Internet (X.509)	Number of Issues:	1	Total Issue Severity:	3
This solution is used within the E.U., and Australia. It combines standards associated with EU: CA Service with those for I-M: Mobile Internet (X.509). The EU: CA Service standards include upper-layer standards required to implement V2x safety situation awareness information flows. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Internet connection method.					

Solution Name:		EU: CA Service - Mobile Internet (X.509)			Number of Issues:	1	Total Issue Severity:	3
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: CAM	Develop an internationally acceptable ITS application specification for CAM for each use case where it applies and when the CAM should include optional fields for each condition.			Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Vehicle OBE		Data Distribution System		vehicle situation data				

Solution Name:		EU: Contextual Speed Information Service - Local Broadcast Wireless (AU/EU)				Number of Issues:	4	Total Issue Severity:	12									
This solution is used within the E.U., and Australia. It combines standards associated with EU: Contextual Speed Information Service with those for V-X: Local Broadcast Wireless (AU/EU). The EU: Contextual Speed Information Service standards include upper-layer standards that support for providing speed information to a vehicle from roadside infrastructure. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.																		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability									
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).				Urgent	Australia, European Union									
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Connected Vehicle Roadside Equipment</td><td>Vehicle OBE</td><td>reduced speed notification</td></tr><tr><td>Connected Vehicle Roadside Equipment</td><td>Vehicle OBE</td><td>speed management information</td></tr></table>										Source	Destination	Flow Name	Connected Vehicle Roadside Equipment	Vehicle OBE	reduced speed notification	Connected Vehicle Roadside Equipment	Vehicle OBE	speed management information
Source	Destination	Flow Name																
Connected Vehicle Roadside Equipment	Vehicle OBE	reduced speed notification																
Connected Vehicle Roadside Equipment	Vehicle OBE	speed management information																
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability									
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).				Urgent	Australia, European Union, United States									
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Connected Vehicle Roadside Equipment</td><td>Vehicle OBE</td><td>reduced speed notification</td></tr><tr><td>Connected Vehicle Roadside Equipment</td><td>Vehicle OBE</td><td>speed management information</td></tr></table>										Source	Destination	Flow Name	Connected Vehicle Roadside Equipment	Vehicle OBE	reduced speed notification	Connected Vehicle Roadside Equipment	Vehicle OBE	speed management information
Source	Destination	Flow Name																
Connected Vehicle Roadside Equipment	Vehicle OBE	reduced speed notification																
Connected Vehicle Roadside Equipment	Vehicle OBE	speed management information																
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability									
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).				Urgent	Australia, European Union									
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Connected Vehicle Roadside Equipment</td><td>Vehicle OBE</td><td>speed management information</td></tr></table>										Source	Destination	Flow Name	Connected Vehicle Roadside Equipment	Vehicle OBE	speed management information			
Source	Destination	Flow Name																
Connected Vehicle Roadside Equipment	Vehicle OBE	speed management information																



Solution Name:		EU: Contextual Speed Information Service - Local Broadcast Wireless (AU/EU)				Number of Issues:	4	Total Issue Severity:	12
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		reduced speed notification					
Connected Vehicle Roadside Equipment		Vehicle OBE		speed management information					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: EU vehicle signage data	Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		reduced speed notification					
Connected Vehicle Roadside Equipment		Vehicle OBE		speed management information					

Solution Name:

EU: Contextual Speed Information Service - Mobile Internet (X.509)

Number of Issues:

2

Total Issue Severity:

6

This solution is used within the E.U., and Australia. It combines standards associated with EU: Contextual Speed Information Service with those for I-M: Mobile Internet (X.509). The EU: Contextual Speed Information Service standards include upper-layer standards that support for providing speed information to a vehicle from roadside infrastructure. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Intneret connection method.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Traffic Management Center		Vehicle OBE		speed management information		



Solution Name:		EU: Contextual Speed Information Service - Mobile Internet (X.509)				Number of Issues:	2	Total Issue Severity:	6		
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability	
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.		Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.				Urgent	Australia, European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution											
Source			Destination			Flow Name					
Traffic Management Center			Vehicle OBE			speed management information					

Solution Name:		EU: Data Probe Management - Local Broadcast Wireless (AU/EU)				Number of Issues:	5	Total Issue Severity:	15																
This solution is used within the E.U., and Australia. It combines standards associated with EU: Data Probe Management with those for V-X: Local Broadcast Wireless (AU/EU). The EU: Data Probe Management standards include upper layer standards that define how to manage the reporting of probe data. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.																									
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability																
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).				Urgent	Australia, European Union																
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td colspan="2">Destination</td><td colspan="5">Flow Name</td></tr><tr><td>Connected Vehicle Roadside Equipment</td><td colspan="2">Vehicle OBE</td><td colspan="5">vehicle situation data parameters</td></tr></table>										Source	Destination		Flow Name					Connected Vehicle Roadside Equipment	Vehicle OBE		vehicle situation data parameters				
Source	Destination		Flow Name																						
Connected Vehicle Roadside Equipment	Vehicle OBE		vehicle situation data parameters																						
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability																
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).				Urgent	Australia, European Union, United States																
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td colspan="2">Destination</td><td colspan="5">Flow Name</td></tr><tr><td>Connected Vehicle Roadside Equipment</td><td colspan="2">Vehicle OBE</td><td colspan="5">vehicle situation data parameters</td></tr></table>										Source	Destination		Flow Name					Connected Vehicle Roadside Equipment	Vehicle OBE		vehicle situation data parameters				
Source	Destination		Flow Name																						
Connected Vehicle Roadside Equipment	Vehicle OBE		vehicle situation data parameters																						
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability																
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.				Urgent	Australia, European Union																
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td colspan="2">Destination</td><td colspan="5">Flow Name</td></tr><tr><td>Connected Vehicle Roadside Equipment</td><td colspan="2">Vehicle OBE</td><td colspan="5">vehicle situation data parameters</td></tr></table>										Source	Destination		Flow Name					Connected Vehicle Roadside Equipment	Vehicle OBE		vehicle situation data parameters				
Source	Destination		Flow Name																						
Connected Vehicle Roadside Equipment	Vehicle OBE		vehicle situation data parameters																						

Solution Name:		EU: Data Probe Management - Local Broadcast Wireless (AU/EU)				Number of Issues:	5	Total Issue Severity:	15
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: Situation data	Develop an internationally acceptable ITS application specification for the use case of distributing collected situation data (e.g., BSMS/CAMs, sensors, probe data, etc.) between vehicles and remote interested parties (e.g., centres).				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle situation data parameters					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	C-V: Situation data	Develop an internationally acceptable ITS application specification for the use case of distributing collected situation data (e.g., BSMS/CAMs, sensors, probe data, etc.) between vehicles and remote interested parties (e.g., centres).				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle situation data parameters					

Solution Name:	EU: Data Probe Management - Mobile Internet (X.509)	Number of Issues:	2	Total Issue Severity:	6
This solution is used within the E.U., and Australia. It combines standards associated with EU: Data Probe Management with those for I-M: Mobile Internet (X.509). The EU: Data Probe Management standards include upper layer standards that define how to manage the reporting of probe data. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Internet connection method.					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: Situation data	Develop an internationally acceptable ITS application specification for the use case of distributing collected situation data (e.g., BSMs/CAMs, sensors, probe data, etc.) between vehicles and remote interested parties (e.g., centres).	Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Transportation Information Center		Vehicle OBE		vehicle situation data parameters		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	C-V: Situation data	Develop an internationally acceptable ITS application specification for the use case of distributing collected situation data (e.g., BSMs/CAMs, sensors, probe data, etc.) between vehicles and remote interested parties (e.g., centres).	Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Transportation Information Center		Vehicle OBE		vehicle situation data parameters		

Solution Name:		EU: Data Transmodel - DATEX Messaging TCP				Number of Issues:	2	Total Issue Severity:	35
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<b>Solution Name:</b>	<b>EU: Data Transmodel - DATEX Messaging TCP</b>	<b>Number of Issues:</b>	2	<b>Total Issue Severity:</b>	35
This solution is used within the European Union. It combines standards associated with EU: Data Transmodel with those for C-C: DATEX Messaging TCP. The EU: Data Transmodel standards include upper-layer standards required to implement "Transmodel", the short name for the European Standard "Public Transport Reference Data Model" (EN 12896), which provides the standard facilitates interoperability between information processing systems of the transport operators and agencies by using matching definitions, structures and meanings for their data for the systems being part of one solution. The C-C: DATEX Messaging TCP standards include lower-layer standards that support partially secure communications between two centres as commonly used in Europe.					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	<div>Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.</div> <div>Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).</div>	Urgent	Australia, European Union, United States

Source	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution				
	Destination	Flow Name			
	Traffic Management Center	transit management center traffic control priority status			
	Transit Management Center	Traffic Management Center traffic control priority request			
Transit Management Center		Transportation Information Center transit and fare schedules			

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: US signal priority/preemption	Develop an ITS application specification for centres to exchange requests and status for signal priority/preemption along a route.	Medium-term	United States

Source	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution				
	Destination	Flow Name			
	Traffic Management Center	transit management center traffic control priority status			
	Transit Management Center	Traffic Management Center traffic control priority request			

<b>Solution Name:</b>	<b>EU: Data Transmodel - Mobile XML</b>	<b>Number of Issues:</b>	2	<b>Total Issue Severity:</b>	35
This solution is used within the European Union. It combines standards associated with EU: Data Transmodel with those for I-M: Mobile XML. The EU: Data Transmodel standards include upper-layer standards required to implement “Transmodel”, the short name for the European Standard “Public Transport Reference Data Model” (EN 12896), which provides the standard facilitates interoperability between information processing systems of the transport operators and agencies by using matching definitions, structures and meanings for their data for the systems being part of one solution. The I-M: Mobile XML standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509 or IEEE 1609.2 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Intneret connection method.					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	C-V: Transit vehicle schedule management	Develop an ITS application specification for managing transit vehicle schedule performance data from transit vehicles to a centre.	Near-term	Australia, European Union

Source	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution				
	Destination	Flow Name			
Transit Vehicle OBE		Transit Management Center transit vehicle schedule performance			

<b>Solution Name:</b>	<b>EU: Data Transmodel - Mobile XML</b>	<b>Number of Issues:</b>	2	<b>Total Issue Severity:</b>	35
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Transit vehicle schedule management	Develop an ITS application specification for managing transit vehicle schedule performance data from transit vehicles to a centre.	Near-term	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Transit Management Center		Transit Vehicle OBE		transit schedule information		
Transit Vehicle OBE		Transit Management Center		transit vehicle schedule performance		

<b>Solution Name:</b>	<b>EU: Data Transmodel - ODG-OCIT-C</b>	<b>Number of Issues:</b>	3	<b>Total Issue Severity:</b>	38
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This solution is used within the European Union. It combines standards associated with EU: Data Transmodel with those for C-C: ODG-OCIT-C. The EU: Data Transmodel standards include upper-layer standards required to implement "Transmodel", the short name for the European Standard "Public Transport Reference Data Model" (EN 12896), which provides the standard facilitates interoperability between information processing systems of the transport operators and agencies by using matching definitions, structures and meanings for their data for the systems being part of one solution. The C-C: ODG-OCIT-C standards include lower-layer ODG proprietary protocol used within the EU for road traffic data exchange between central stations

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	<p>Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.</p> <p>Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).</p>	Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Traffic Management Center		Transit Management Center		traffic control priority status		
Transit Management Center		Traffic Management Center		traffic control priority request		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: US signal priority/preemption	Develop an ITS application specification for centres to exchange requests and status for signal priority/preemption along a route.	Medium-term	United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Traffic Management Center		Transit Management Center		traffic control priority status		
Transit Management Center		Traffic Management Center		traffic control priority request		

Solution Name:		EU: Data Transmodel - ODG-OCIT-C			Number of Issues:	3	Total Issue Severity:	38
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Not an open standard	The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Medium	C-C: Secure communications	Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.  Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).		Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Traffic Management Center		Transit Management Center		traffic control priority status				
Transit Management Center		Traffic Management Center		traffic control priority request				

Solution Name:	EU: DATEX - DATEX Messaging TCP	Number of Issues:	6	Total Issue Severity:	47
This solution is used within the European Union. It combines standards associated with EU: DATEX with those for C-C: DATEX Messaging TCP. The EU: DATEX standards include upper-layer standards required to exchange and share data and information in the field of traffic and travel. The C-C: DATEX Messaging TCP standards include lower-layer standards that support partially secure communications between two centres as commonly used in Europe.					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	<p>Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.</p> <p>Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).</p>	Urgent	Australia, European Union, United States
Source	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination	Flow Name			
	Alternate Mode Transportation Center	Traffic Management Center	alternate mode incident information			
	Connected Vehicle Roadside Equipment	Transportation Information Center	environmental situation data			
	Emergency Management Center	Transportation Information Center	incident information			
	Maint and Constr Management Center	Center	equipment maintenance status			
	Maint and Constr Management Center	Traffic Management Center	work zone information			
	Maint and Constr Management Center	Transportation Information Center	maint and constr work plans			
	Maint and Constr Management Center	Transportation Information Center	roadway maintenance status			
	Maint and Constr Management Center	Transportation Information Center	work zone information			
	Other Traffic Management Centers	Traffic Management Center	device data			
	Other Traffic Management Centers	Traffic Management Center	device status			
	Other Traffic Management Centers	Traffic Management Center	road network conditions			
	Other Transportation Information Centers	Transportation Information Center	incident information			
	Other Transportation Information Centers	Transportation Information Center	parking information			
	Other Transportation Information Centers	Transportation Information Center	road network conditions			
	Other Transportation Information Centers	Transportation Information Center	traffic image meta data			
	Other Transportation Information Centers	Transportation Information Center	traffic images			

Solution Name:	EU: DATEX - DATEX Messaging TCP	Number of Issues:	6	Total Issue Severity:	47
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Parking Management System	Traffic Management Center	parking information
Parking Management System	Transit Management Center	parking information
Parking Management System	Transportation Information Center	parking information
Surface Transportation Weather Service	Traffic Management Center	transportation weather information
Traffic Management Center	Emergency Management Center	incident information
Traffic Management Center	Emergency Management Center	road network conditions
Traffic Management Center	Maint and Constr Management Center	incident information
Traffic Management Center	Maint and Constr Management Center	road network conditions
Traffic Management Center	Other Traffic Management Centers	device data
Traffic Management Center	Other Traffic Management Centers	device status
Traffic Management Center	Other Traffic Management Centers	road network conditions
Traffic Management Center	Transportation Information Center	incident information
Traffic Management Center	Transportation Information Center	road network conditions
Traffic Management Center	Transportation Information Center	traffic control information
Traffic Management Center	Transportation Information Center	traffic demand management information
Traffic Management Center	Transportation Information Center	traffic image meta data
Traffic Management Center	Transportation Information Center	traffic images
Transportation Information Center	Fleet and Freight Management Center	incident information
Transportation Information Center	Fleet and Freight Management Center	road network conditions
Transportation Information Center	Other Transportation Information Centers	incident information
Transportation Information Center	Other Transportation Information Centers	parking information
Transportation Information Center	Other Transportation Information Centers	road network conditions
Transportation Information Center	Other Transportation Information Centers	traffic image meta data
Transportation Information Center	Other Transportation Information Centers	traffic images
Transportation Information Center	Traffic Management Center	road network environmental situation data
Transportation Information Center	Wide Area Information Disseminator	broadcast traveler information

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: Situation data	Develop an internationally acceptable ITS application specification for the use case of distributing collected situation data (e.g., BSMS, CAMs, sensors, etc.) among various centres.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Transportation Information Center	Traffic Management Center	road network environmental situation data

Solution Name:		EU: DATEX - DATEX Messaging TCP				Number of Issues:	6	Total Issue Severity:	47						
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability						
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: AU weather information	Adopt an existing weather information centre-to-centre data profile for use within the region.				Near-term	Australia, European Union, United States						
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Surface Transportation Weather Service</td><td>Traffic Management Center</td><td>transportation weather information</td></tr></table>									Source	Destination	Flow Name	Surface Transportation Weather Service	Traffic Management Center	transportation weather information	
Source	Destination	Flow Name													
Surface Transportation Weather Service	Traffic Management Center	transportation weather information													
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability						
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: Equipment maintenance coordination	Develop an internationally acceptable ITS application specification for C-C exchange of equipment maintenance and status information				Near-term	Australia, European Union, United States						
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Maint and Constr Management Center</td><td>Center</td><td>equipment maintenance status</td></tr></table>									Source	Destination	Flow Name	Maint and Constr Management Center	Center	equipment maintenance status	
Source	Destination	Flow Name													
Maint and Constr Management Center	Center	equipment maintenance status													
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability						
Data not fully defined (medium)	Some of the data elements for this information flow are not fully defined.	Medium	I-F: Data aggregation	Develop an internationally acceptable ITS application specification for an RSE to aggregate collected data and report the information to interested parties (e.g., centres).				Urgent	Australia, European Union, United States						
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Connected Vehicle Roadside Equipment</td><td>Transportation Information Center</td><td>environmental situation data</td></tr></table>									Source	Destination	Flow Name	Connected Vehicle Roadside Equipment	Transportation Information Center	environmental situation data	
Source	Destination	Flow Name													
Connected Vehicle Roadside Equipment	Transportation Information Center	environmental situation data													
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability						
Still under development	A draft of the standard has been developed by the working group, but it was still under development at the time the HARTS analysis was performed.	Medium	I-F: Data aggregation	Develop an internationally acceptable ITS application specification for an RSE to aggregate collected data and report the information to interested parties (e.g., centres).				Urgent	Australia, European Union, United States						
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Connected Vehicle Roadside Equipment</td><td>Transportation Information Center</td><td>environmental situation data</td></tr></table>									Source	Destination	Flow Name	Connected Vehicle Roadside Equipment	Transportation Information Center	environmental situation data	
Source	Destination	Flow Name													
Connected Vehicle Roadside Equipment	Transportation Information Center	environmental situation data													
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability						
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-C: WAID	Develop an internationally acceptable ITS application specification for providing information from a centre to a WAID for wide-area dissemination.				Urgent	Australia, European Union, United States						
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Transportation Information Center</td><td>Wide Area Information Disseminator</td><td>broadcast traveler information</td></tr></table>									Source	Destination	Flow Name	Transportation Information Center	Wide Area Information Disseminator	broadcast traveler information	
Source	Destination	Flow Name													
Transportation Information Center	Wide Area Information Disseminator	broadcast traveler information													



Solution Name:		EU: DATEX - DATEX Messaging TCP			Number of Issues:	6	Total Issue Severity:	47
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	C-C: Road work information	Develop an internationally acceptable ITS application specification for C-C exchange of road works and seasonal maintenance data.		Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Maint and Constr Management Center		Traffic Management Center		work zone information				
Maint and Constr Management Center		Transportation Information Center		work zone information				

Solution Name:	EU: DATEX - ODG-OCIT-C	Number of Issues:	2	Total Issue Severity:	6
This solution is used within the European Union. It combines standards associated with EU: DATEX with those for C-C: ODG-OCIT-C. The EU: DATEX standards include upper-layer standards required to exchange and share data and information in the field of traffic and travel. The C-C: ODG-OCIT-C standards include lower-layer ODG proprietary protocol used within the EU for road traffic data exchange between central stations					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	<p>Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.</p> <p>Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).</p>	Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Alternate Mode Transportation Center		Traffic Management Center		alternate mode incident information		
Other Traffic Management Centers		Traffic Management Center		road network conditions		
Traffic Management Center		Emergency Management Center		road network conditions		
Traffic Management Center		Emissions Management Center		road network conditions		
Traffic Management Center		Fleet and Freight Management Center		road network conditions		
Traffic Management Center		Maint and Constr Management Center		road network conditions		
Traffic Management Center		Other Traffic Management Centers		road network conditions		
Traffic Management Center		Transit Management Center		road network conditions		
Traffic Management Center		Transportation Information Center		road network conditions		



Solution Name:		EU: DATEX - ODG-OCIT-C			Number of Issues:	2	Total Issue Severity:	6
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Not an open standard	The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Medium	C-C: Secure communications	Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.  Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).		Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Alternate Mode Transportation Center		Traffic Management Center		alternate mode incident information				
Other Traffic Management Centers		Traffic Management Center		road network conditions				
Traffic Management Center		Emergency Management Center		road network conditions				
Traffic Management Center		Emissions Management Center		road network conditions				
Traffic Management Center		Fleet and Freight Management Center		road network conditions				
Traffic Management Center		Maint and Constr Management Center		road network conditions				
Traffic Management Center		Other Traffic Management Centers		road network conditions				
Traffic Management Center		Transit Management Center		road network conditions				
Traffic Management Center		Transportation Information Center		road network conditions				

Solution Name:		EU: DEN Service - BTP/GeoNetworking/G5			Number of Issues:	8	Total Issue Severity:	32
This solution is used within the E.U., and Australia. It combines standards associated with EU: DEN Service with those for V-X: BTP/GeoNetworking/G5. The EU: DEN Service standards include upper-layer standards required to implement V2x decentralized environmental notification information flows. The V-X: BTP/GeoNetworking/G5 standards include lower-layer standards that support broadcast, near constant, low latency vehicle-to-vehicle and vehicle-to-infrastructure communications using the ETSI GeoNetworking Bundle over the 5.9GHz spectrum.								
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.		Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).		Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination			Flow Name			
Commercial Vehicle OBE		Fleet and Freight Management Center			vehicle environmental data			
Commercial Vehicle OBE		Vehicle OBE			special vehicle type alert			
Connected Vehicle Roadside Equipment		Vehicle OBE			intersection safety warning			
Connected Vehicle Roadside Equipment		Vehicle OBE			queue warning information			
Connected Vehicle Roadside Equipment		Vehicle OBE			vehicle collision warning			
Connected Vehicle Roadside Equipment		Vehicle OBE			wrong way vehicle detected			
Emergency Vehicle OBE		Vehicle OBE			special vehicle type alert			
Maint and Constr Vehicle OBE		Vehicle OBE			special vehicle type alert			
Other Vehicle OBEs		Vehicle OBE			intersection infringement info			
Other Vehicle OBEs		Vehicle OBE			vehicle collision warning			

Solution Name:	EU: DEN Service - BTP/GeoNetworking/G5	Number of Issues:	8	Total Issue Severity:	32
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Other Vehicle OBEs	Vehicle OBE	vehicle control event
Other Vehicle OBEs	Vehicle OBE	vehicle environmental data
Other Vehicle OBEs	Vehicle OBE	vehicle hazard event
Other Vehicle OBEs	Vehicle OBE	wrong way vehicle detected
Transit Vehicle OBE	Vehicle OBE	special vehicle type alert
Vehicle OBE	Connected Vehicle Roadside Equipment	intersection infringement info
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle control event
Vehicle OBE	Connected Vehicle Roadside Equipment	wrong way vehicle detected
Vehicle OBE	Other Vehicle OBEs	intersection infringement info
Vehicle OBE	Other Vehicle OBEs	vehicle collision warning
Vehicle OBE	Other Vehicle OBEs	vehicle control event
Vehicle OBE	Other Vehicle OBEs	vehicle hazard event
Vehicle OBE	Other Vehicle OBEs	wrong way vehicle detected

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not defined (high)	The performance rules are not defined for this information flow.	High	V-L: CAM and DENM	Standardise on a single solution for providing vehicle event information; currently this information can be transmitted using CAM or DENM.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution			
Source	Destination	Flow Name	
Commercial Vehicle OBE	Fleet and Freight Management Center	vehicle environmental data	
Other Vehicle OBEs	Vehicle OBE	vehicle environmental data	

Solution Name:	EU: DEN Service - BTP/GeoNetworking/G5	Number of Issues:	8	Total Issue Severity:	32
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Commercial Vehicle OBE	Fleet and Freight Management Center	vehicle environmental data
Commercial Vehicle OBE	Vehicle OBE	special vehicle type alert
Connected Vehicle Roadside Equipment	Vehicle OBE	intersection safety warning
Connected Vehicle Roadside Equipment	Vehicle OBE	queue warning information
Connected Vehicle Roadside Equipment	Vehicle OBE	vehicle collision warning
Connected Vehicle Roadside Equipment	Vehicle OBE	wrong way vehicle detected
Emergency Vehicle OBE	Vehicle OBE	special vehicle type alert
Maint and Constr Vehicle OBE	Vehicle OBE	special vehicle type alert
Other Vehicle OBEs	Vehicle OBE	intersection infringement info
Other Vehicle OBEs	Vehicle OBE	vehicle collision warning
Other Vehicle OBEs	Vehicle OBE	vehicle control event
Other Vehicle OBEs	Vehicle OBE	vehicle environmental data
Other Vehicle OBEs	Vehicle OBE	vehicle hazard event
Other Vehicle OBEs	Vehicle OBE	wrong way vehicle detected
Transit Vehicle OBE	Vehicle OBE	special vehicle type alert
Vehicle OBE	Connected Vehicle Roadside Equipment	intersection infringement info
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle control event
Vehicle OBE	Connected Vehicle Roadside Equipment	wrong way vehicle detected
Vehicle OBE	Other Vehicle OBEs	intersection infringement info
Vehicle OBE	Other Vehicle OBEs	vehicle collision warning
Vehicle OBE	Other Vehicle OBEs	vehicle control event
Vehicle OBE	Other Vehicle OBEs	vehicle hazard event
Vehicle OBE	Other Vehicle OBEs	wrong way vehicle detected

Solution Name:	EU: DEN Service - BTP/GeoNetworking/G5	Number of Issues:	8	Total Issue Severity:	32
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTF/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTF/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Commercial Vehicle OBE	Fleet and Freight Management Center	vehicle environmental data
Commercial Vehicle OBE	Vehicle OBE	special vehicle type alert
Connected Vehicle Roadside Equipment	Vehicle OBE	intersection safety warning
Connected Vehicle Roadside Equipment	Vehicle OBE	queue warning information
Connected Vehicle Roadside Equipment	Vehicle OBE	vehicle collision warning
Connected Vehicle Roadside Equipment	Vehicle OBE	wrong way vehicle detected
Emergency Vehicle OBE	Vehicle OBE	special vehicle type alert
Maint and Constr Vehicle OBE	Vehicle OBE	special vehicle type alert
Other Vehicle OBEs	Vehicle OBE	intersection infringement info
Other Vehicle OBEs	Vehicle OBE	vehicle collision warning
Other Vehicle OBEs	Vehicle OBE	vehicle control event
Other Vehicle OBEs	Vehicle OBE	vehicle environmental data
Other Vehicle OBEs	Vehicle OBE	vehicle hazard event
Other Vehicle OBEs	Vehicle OBE	wrong way vehicle detected
Transit Vehicle OBE	Vehicle OBE	special vehicle type alert
Vehicle OBE	Connected Vehicle Roadside Equipment	intersection infringement info
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle control event
Vehicle OBE	Connected Vehicle Roadside Equipment	wrong way vehicle detected
Vehicle OBE	Other Vehicle OBEs	intersection infringement info
Vehicle OBE	Other Vehicle OBEs	vehicle collision warning
Vehicle OBE	Other Vehicle OBEs	vehicle control event
Vehicle OBE	Other Vehicle OBEs	vehicle hazard event
Vehicle OBE	Other Vehicle OBEs	wrong way vehicle detected

Solution Name:	EU: DEN Service - BTP/GeoNetworking/G5	Number of Issues:	8	Total Issue Severity:	32
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: CAM and DENM	Standardise on a single solution for providing vehicle event information; currently this information can be transmitted using CAM or DENM.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Commercial Vehicle OBE	Vehicle OBE	special vehicle type alert
Emergency Vehicle OBE	Vehicle OBE	special vehicle type alert
Maint and Constr Vehicle OBE	Vehicle OBE	special vehicle type alert
Other Vehicle OBEs	Vehicle OBE	vehicle control event
Transit Vehicle OBE	Vehicle OBE	special vehicle type alert
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle control event
Vehicle OBE	Other Vehicle OBEs	vehicle control event

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Use case not considered in design (critical)	While the indicated standards nominally address the information flow, the design details may not meet performance or other requirements because this particular use case was not the focus of the design effort.	High	V-L: Special vehicle alert	Develop an internationally acceptable ITS application specification for sending special vehicle alerts.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Commercial Vehicle OBE	Vehicle OBE	special vehicle type alert
Emergency Vehicle OBE	Vehicle OBE	special vehicle type alert
Maint and Constr Vehicle OBE	Vehicle OBE	special vehicle type alert
Transit Vehicle OBE	Vehicle OBE	special vehicle type alert

Solution Name:		EU: DEN Service - BTP/GeoNetworking/G5				Number of Issues:	8	Total Issue Severity:	32
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Protocol features partly not applicable in the given context	A feature of the protocol is not fully applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9 GHz channels.	Low	V-L: GeoNetworking	Determine how to implement GeoNetworking without unduly flooding the network and, if feasible, prove out concept.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Commercial Vehicle OBE		Fleet and Freight Management Center			vehicle environmental data				
Commercial Vehicle OBE		Vehicle OBE			special vehicle type alert				
Connected Vehicle Roadside Equipment		Vehicle OBE			intersection safety warning				
Connected Vehicle Roadside Equipment		Vehicle OBE			queue warning information				
Connected Vehicle Roadside Equipment		Vehicle OBE			vehicle collision warning				
Connected Vehicle Roadside Equipment		Vehicle OBE			wrong way vehicle detected				
Emergency Vehicle OBE		Vehicle OBE			special vehicle type alert				
Maint and Constr Vehicle OBE		Vehicle OBE			special vehicle type alert				
Other Vehicle OBEs		Vehicle OBE			intersection infringement info				
Other Vehicle OBEs		Vehicle OBE			vehicle collision warning				
Other Vehicle OBEs		Vehicle OBE			vehicle control event				
Other Vehicle OBEs		Vehicle OBE			vehicle environmental data				
Other Vehicle OBEs		Vehicle OBE			vehicle hazard event				
Other Vehicle OBEs		Vehicle OBE			wrong way vehicle detected				
Transit Vehicle OBE		Vehicle OBE			special vehicle type alert				
Vehicle OBE		Connected Vehicle Roadside Equipment			intersection infringement info				
Vehicle OBE		Connected Vehicle Roadside Equipment			vehicle control event				
Vehicle OBE		Connected Vehicle Roadside Equipment			wrong way vehicle detected				
Vehicle OBE		Other Vehicle OBEs			intersection infringement info				
Vehicle OBE		Other Vehicle OBEs			vehicle collision warning				
Vehicle OBE		Other Vehicle OBEs			vehicle control event				
Vehicle OBE		Other Vehicle OBEs			vehicle hazard event				
Vehicle OBE		Other Vehicle OBEs			wrong way vehicle detected				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Environmental data sharing	Develop an internationally acceptable ITS application specification for sharing environmental data from vehicles to other local entities. The effort should consider efforts to date under both J2735 and DENM.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Other Vehicle OBEs		Vehicle OBE			vehicle environmental data				

Solution Name:		EU: DEN Service - BTP/GeoNetworking/G5				Number of Issues:	8	Total Issue Severity:	32
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Special vehicle alert	Develop an internationally acceptable ITS application specification for sending special vehicle alerts.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Commercial Vehicle OBE		Vehicle OBE		special vehicle type alert					
Maint and Constr Vehicle OBE		Vehicle OBE		special vehicle type alert					
Transit Vehicle OBE		Vehicle OBE		special vehicle type alert					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Intersection infringement	Develop an internationally acceptable ITS application specification that defines the rules for providing intersection infringement information within a local environment.				Urgent	United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		intersection safety warning					
Other Vehicle OBEs		Vehicle OBE		intersection infringement info					
Vehicle OBE		Connected Vehicle Roadside Equipment		intersection infringement info					
Vehicle OBE		Other Vehicle OBEs		intersection infringement info					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: DENM	Develop an internationally acceptable ITS application specification for DENM for each use case where it applies and when the DENM should include optional fields for each condition.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		wrong way vehicle detected					
Other Vehicle OBEs		Vehicle OBE		vehicle collision warning					
Other Vehicle OBEs		Vehicle OBE		vehicle control event					
Other Vehicle OBEs		Vehicle OBE		vehicle hazard event					
Other Vehicle OBEs		Vehicle OBE		wrong way vehicle detected					
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle control event					
Vehicle OBE		Connected Vehicle Roadside Equipment		wrong way vehicle detected					
Vehicle OBE		Other Vehicle OBEs		vehicle collision warning					
Vehicle OBE		Other Vehicle OBEs		vehicle control event					
Vehicle OBE		Other Vehicle OBEs		vehicle hazard event					
Vehicle OBE		Other Vehicle OBEs		wrong way vehicle detected					

Solution Name:		EU: DEN Service - BTP/GeoNetworking/G5				Number of Issues:	8	Total Issue Severity:	32																																																										
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability																																																										
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: Vehicle collision warning	Standardise the complete ITS application specification for exchanging alerts locally that vehicles are about to collide.				Urgent	European Union																																																										
<table><tr><td colspan="4">Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</td><td colspan="5"></td></tr><tr><td colspan="2">Source</td><td colspan="3">Destination</td><td colspan="5">Flow Name</td></tr><tr><td colspan="2">Connected Vehicle Roadside Equipment</td><td colspan="3">Vehicle OBE</td><td colspan="5">vehicle collision warning</td></tr></table>									Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									Source		Destination			Flow Name					Connected Vehicle Roadside Equipment		Vehicle OBE			vehicle collision warning																																		
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution																																																																			
Source		Destination			Flow Name																																																														
Connected Vehicle Roadside Equipment		Vehicle OBE			vehicle collision warning																																																														
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability																																																										
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: Environmental data sharing	Develop an internationally acceptable ITS application specification for sharing environmental data from vehicles to other local entities. The effort should consider efforts to date under both J2735 and DENM.				Urgent	Australia, European Union, United States																																																										
<table><tr><td colspan="4">Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</td><td colspan="5"></td></tr><tr><td colspan="2">Source</td><td colspan="3">Destination</td><td colspan="5">Flow Name</td></tr><tr><td colspan="2">Other Vehicle OBEs</td><td colspan="3">Vehicle OBE</td><td colspan="5">vehicle environmental data</td></tr></table>									Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									Source		Destination			Flow Name					Other Vehicle OBEs		Vehicle OBE			vehicle environmental data																																		
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability																																																										
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: Intersection infringement	Develop an internationally acceptable ITS application specification that defines the rules for providing intersection infringement information within a local environment.				Urgent	United States																																																										
<table><tr><td colspan="4">Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</td><td colspan="5"></td></tr><tr><td colspan="2">Source</td><td colspan="3">Destination</td><td colspan="5">Flow Name</td></tr><tr><td colspan="2">Connected Vehicle Roadside Equipment</td><td colspan="3">Vehicle OBE</td><td colspan="5">intersection safety warning</td></tr><tr><td colspan="2">Other Vehicle OBEs</td><td colspan="3">Vehicle OBE</td><td colspan="5">intersection infringement info</td></tr><tr><td colspan="2">Vehicle OBE</td><td colspan="3">Connected Vehicle Roadside Equipment</td><td colspan="5">intersection infringement info</td></tr><tr><td colspan="2">Vehicle OBE</td><td colspan="3">Other Vehicle OBEs</td><td colspan="5">intersection infringement info</td></tr></table>									Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									Source		Destination			Flow Name					Connected Vehicle Roadside Equipment		Vehicle OBE			intersection safety warning					Other Vehicle OBEs		Vehicle OBE			intersection infringement info					Vehicle OBE		Connected Vehicle Roadside Equipment			intersection infringement info					Vehicle OBE		Other Vehicle OBEs			intersection infringement info				
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Solution Name:	EU: DEN Service - EU-ICIP-C2F	Number of Issues:	2	Total Issue Severity:	16
This solution is used within the European Union. It combines standards associated with EU: DEN Service with those for I-F: EU-ICIP-C2F. The EU: DEN Service standards include upper-layer standards required to implement V2x decentralized environmental notification information flows. The I-F: EU-ICIP-C2F standards include lower-layer placeholder for a European solution currently under development. It is planned that the EU-ICIP will provide guidance as to what lower-layer standards should be used in various environments, but it is not expected to directly specify these layers.					



Solution Name:		EU: DEN Service - EU-ICIP-C2F				Number of Issues:	2	Total Issue Severity:	16																										
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability																											
Security not provided	The solution does not provide any significant security and a communications link using this solution is easily hacked.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.			Urgent	Australia, European Union, United States																											
<table><tr><td colspan="9">Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</td></tr><tr><td colspan="3">Source</td><td colspan="3">Destination</td><td colspan="3">Flow Name</td></tr><tr><td colspan="3">Connected Vehicle Roadside Equipment</td><td colspan="3">ITS Roadway Equipment</td><td colspan="3">intersection infringement info</td></tr></table>									Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									Source			Destination			Flow Name			Connected Vehicle Roadside Equipment			ITS Roadway Equipment			intersection infringement info		
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution																																			
Source			Destination			Flow Name																													
Connected Vehicle Roadside Equipment			ITS Roadway Equipment			intersection infringement info																													
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability																											
Draft not available (Critical)	The standards development organization has established a work item for the subject standard but a draft is not available for this critical feature to enable the interface. The draft may be missing due to the work item being new or simply a lack of activity on the work item.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.			Urgent	Australia, European Union, United States																											
<table><tr><td colspan="9">Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</td></tr><tr><td colspan="3">Source</td><td colspan="3">Destination</td><td colspan="3">Flow Name</td></tr><tr><td colspan="3">Connected Vehicle Roadside Equipment</td><td colspan="3">ITS Roadway Equipment</td><td colspan="3">intersection infringement info</td></tr></table>									Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									Source			Destination			Flow Name			Connected Vehicle Roadside Equipment			ITS Roadway Equipment			intersection infringement info		
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution																																			
Source			Destination			Flow Name																													
Connected Vehicle Roadside Equipment			ITS Roadway Equipment			intersection infringement info																													

Solution Name:		EU: DEN Service - FNTF/M5			Number of Issues:	6	Total Issue Severity:	28	
This solution is used within the E.U., and Australia. It combines standards associated with EU: DEN Service with those for V-X: FNTF/M5. The EU: DEN Service standards include upper-layer standards required to implement V2x decentralized environmental notification information flows. The V-X: FNTF/M5 standards include lower-layer standards that support connectionless, broadcast and unicast, near constant, ultra-low latency vehicle-to-any communications within ~300m using Fast Network Transport Profile (FNTF) over the 5 GHz spectrum as allocated within a region. The broadcast mode is interoperable with WAVE WSMP. The M5 radio of this profile can receive ITS G5 frames.									
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Performance not defined (high)	The performance rules are not defined for this information flow.		High	V-L: CAM and DENM	Standardise on a single solution for providing vehicle event information; currently this information can be transmitted using CAM or DENM.			Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source			Destination			Flow Name			
Commercial Vehicle OBE			Fleet and Freight Management Center			vehicle environmental data			
Other Vehicle OBEs			Vehicle OBE			vehicle environmental data			

Solution Name:	EU: DEN Service - FNTP/M5	Number of Issues:	6	Total Issue Severity:	28
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Commercial Vehicle OBE	Fleet and Freight Management Center	vehicle environmental data
Commercial Vehicle OBE	Vehicle OBE	special vehicle type alert
Connected Vehicle Roadside Equipment	Vehicle OBE	intersection safety warning
Connected Vehicle Roadside Equipment	Vehicle OBE	queue warning information
Connected Vehicle Roadside Equipment	Vehicle OBE	vehicle collision warning
Connected Vehicle Roadside Equipment	Vehicle OBE	wrong way vehicle detected
Emergency Vehicle OBE	Vehicle OBE	special vehicle type alert
Maint and Constr Vehicle OBE	Vehicle OBE	special vehicle type alert
Other Vehicle OBEs	Vehicle OBE	intersection infringement info
Other Vehicle OBEs	Vehicle OBE	vehicle collision warning
Other Vehicle OBEs	Vehicle OBE	vehicle control event
Other Vehicle OBEs	Vehicle OBE	vehicle environmental data
Other Vehicle OBEs	Vehicle OBE	vehicle hazard event
Other Vehicle OBEs	Vehicle OBE	wrong way vehicle detected
Transit Vehicle OBE	Vehicle OBE	special vehicle type alert
Vehicle OBE	Connected Vehicle Roadside Equipment	intersection infringement info
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle control event
Vehicle OBE	Connected Vehicle Roadside Equipment	wrong way vehicle detected
Vehicle OBE	Other Vehicle OBEs	intersection infringement info
Vehicle OBE	Other Vehicle OBEs	vehicle collision warning
Vehicle OBE	Other Vehicle OBEs	vehicle control event
Vehicle OBE	Other Vehicle OBEs	vehicle hazard event
Vehicle OBE	Other Vehicle OBEs	wrong way vehicle detected

Solution Name:	EU: DEN Service - FNTF/M5	Number of Issues:	6	Total Issue Severity:	28
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: CAM and DENM	Standardise on a single solution for providing vehicle event information; currently this information can be transmitted using CAM or DENM.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Commercial Vehicle OBE	Vehicle OBE	special vehicle type alert
Emergency Vehicle OBE	Vehicle OBE	special vehicle type alert
Maint and Constr Vehicle OBE	Vehicle OBE	special vehicle type alert
Other Vehicle OBEs	Vehicle OBE	vehicle control event
Transit Vehicle OBE	Vehicle OBE	special vehicle type alert
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle control event
Vehicle OBE	Other Vehicle OBEs	vehicle control event

Solution Name:	EU: DEN Service - FNTP/M5	Number of Issues:	6	Total Issue Severity:	28
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Commercial Vehicle OBE	Fleet and Freight Management Center	vehicle environmental data
Commercial Vehicle OBE	Vehicle OBE	special vehicle type alert
Connected Vehicle Roadside Equipment	Vehicle OBE	intersection safety warning
Connected Vehicle Roadside Equipment	Vehicle OBE	queue warning information
Connected Vehicle Roadside Equipment	Vehicle OBE	vehicle collision warning
Connected Vehicle Roadside Equipment	Vehicle OBE	wrong way vehicle detected
Emergency Vehicle OBE	Vehicle OBE	special vehicle type alert
Maint and Constr Vehicle OBE	Vehicle OBE	special vehicle type alert
Other Vehicle OBEs	Vehicle OBE	intersection infringement info
Other Vehicle OBEs	Vehicle OBE	vehicle collision warning
Other Vehicle OBEs	Vehicle OBE	vehicle control event
Other Vehicle OBEs	Vehicle OBE	vehicle environmental data
Other Vehicle OBEs	Vehicle OBE	vehicle hazard event
Other Vehicle OBEs	Vehicle OBE	wrong way vehicle detected
Transit Vehicle OBE	Vehicle OBE	special vehicle type alert
Vehicle OBE	Connected Vehicle Roadside Equipment	intersection infringement info
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle control event
Vehicle OBE	Connected Vehicle Roadside Equipment	wrong way vehicle detected
Vehicle OBE	Other Vehicle OBEs	intersection infringement info
Vehicle OBE	Other Vehicle OBEs	vehicle collision warning
Vehicle OBE	Other Vehicle OBEs	vehicle control event
Vehicle OBE	Other Vehicle OBEs	vehicle hazard event
Vehicle OBE	Other Vehicle OBEs	wrong way vehicle detected

Solution Name:		EU: DEN Service - FNTF/M5				Number of Issues:	6	Total Issue Severity:	28														
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability															
Use case not considered in design (critical)	While the indicated standards nominally address the information flow, the design details may not meet performance or other requirements because this particular use case was not the focus of the design effort.	High	V-L: Special vehicle alert	Develop an internationally acceptable ITS application specification for sending special vehicle alerts.			Urgent	Australia, European Union, United States															
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Commercial Vehicle OBE</td><td>Vehicle OBE</td><td>special vehicle type alert</td></tr><tr><td>Emergency Vehicle OBE</td><td>Vehicle OBE</td><td>special vehicle type alert</td></tr><tr><td>Maint and Constr Vehicle OBE</td><td>Vehicle OBE</td><td>special vehicle type alert</td></tr><tr><td>Transit Vehicle OBE</td><td>Vehicle OBE</td><td>special vehicle type alert</td></tr></table>									Source	Destination	Flow Name	Commercial Vehicle OBE	Vehicle OBE	special vehicle type alert	Emergency Vehicle OBE	Vehicle OBE	special vehicle type alert	Maint and Constr Vehicle OBE	Vehicle OBE	special vehicle type alert	Transit Vehicle OBE	Vehicle OBE	special vehicle type alert
Source	Destination	Flow Name																					
Commercial Vehicle OBE	Vehicle OBE	special vehicle type alert																					
Emergency Vehicle OBE	Vehicle OBE	special vehicle type alert																					
Maint and Constr Vehicle OBE	Vehicle OBE	special vehicle type alert																					
Transit Vehicle OBE	Vehicle OBE	special vehicle type alert																					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability															
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Environmental data sharing	Develop an internationally acceptable ITS application specification for sharing environmental data from vehicles to other local entities. The effort should consider efforts to date under both J2735 and DENM.			Urgent	Australia, European Union, United States															
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Other Vehicle OBEs</td><td>Vehicle OBE</td><td>vehicle environmental data</td></tr></table>									Source	Destination	Flow Name	Other Vehicle OBEs	Vehicle OBE	vehicle environmental data									
Source	Destination	Flow Name																					
Other Vehicle OBEs	Vehicle OBE	vehicle environmental data																					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability															
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Special vehicle alert	Develop an internationally acceptable ITS application specification for sending special vehicle alerts.			Urgent	Australia, European Union, United States															
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Commercial Vehicle OBE</td><td>Vehicle OBE</td><td>special vehicle type alert</td></tr><tr><td>Maint and Constr Vehicle OBE</td><td>Vehicle OBE</td><td>special vehicle type alert</td></tr><tr><td>Transit Vehicle OBE</td><td>Vehicle OBE</td><td>special vehicle type alert</td></tr></table>									Source	Destination	Flow Name	Commercial Vehicle OBE	Vehicle OBE	special vehicle type alert	Maint and Constr Vehicle OBE	Vehicle OBE	special vehicle type alert	Transit Vehicle OBE	Vehicle OBE	special vehicle type alert			
Source	Destination	Flow Name																					
Commercial Vehicle OBE	Vehicle OBE	special vehicle type alert																					
Maint and Constr Vehicle OBE	Vehicle OBE	special vehicle type alert																					
Transit Vehicle OBE	Vehicle OBE	special vehicle type alert																					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability															
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Intersection infringement	Develop an internationally acceptable ITS application specification that defines the rules for providing intersection infringement information within a local environment.			Urgent	United States															
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Connected Vehicle Roadside Equipment</td><td>Vehicle OBE</td><td>intersection safety warning</td></tr><tr><td>Other Vehicle OBEs</td><td>Vehicle OBE</td><td>intersection infringement info</td></tr><tr><td>Vehicle OBE</td><td>Connected Vehicle Roadside Equipment</td><td>intersection infringement info</td></tr><tr><td>Vehicle OBE</td><td>Other Vehicle OBEs</td><td>intersection infringement info</td></tr></table>									Source	Destination	Flow Name	Connected Vehicle Roadside Equipment	Vehicle OBE	intersection safety warning	Other Vehicle OBEs	Vehicle OBE	intersection infringement info	Vehicle OBE	Connected Vehicle Roadside Equipment	intersection infringement info	Vehicle OBE	Other Vehicle OBEs	intersection infringement info
Source	Destination	Flow Name																					
Connected Vehicle Roadside Equipment	Vehicle OBE	intersection safety warning																					
Other Vehicle OBEs	Vehicle OBE	intersection infringement info																					
Vehicle OBE	Connected Vehicle Roadside Equipment	intersection infringement info																					
Vehicle OBE	Other Vehicle OBEs	intersection infringement info																					

Solution Name:		EU: DEN Service - FNTF/M5				Number of Issues:	6	Total Issue Severity:	28
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: Intersection infringement	Develop an internationally acceptable ITS application specification that defines the rules for providing intersection infringement information within a local environment.				Urgent	United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		intersection safety warning					
Other Vehicle OBEs		Vehicle OBE		intersection infringement info					
Vehicle OBE		Connected Vehicle Roadside Equipment		intersection infringement info					
Vehicle OBE		Other Vehicle OBEs		intersection infringement info					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: DENM	Develop an internationally acceptable ITS application specification for DENM for each use case where it applies and when the DENM should include optional fields for each condition.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		wrong way vehicle detected					
Other Vehicle OBEs		Vehicle OBE		vehicle collision warning					
Other Vehicle OBEs		Vehicle OBE		vehicle control event					
Other Vehicle OBEs		Vehicle OBE		vehicle hazard event					
Other Vehicle OBEs		Vehicle OBE		wrong way vehicle detected					
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle control event					
Vehicle OBE		Connected Vehicle Roadside Equipment		wrong way vehicle detected					
Vehicle OBE		Other Vehicle OBEs		vehicle collision warning					
Vehicle OBE		Other Vehicle OBEs		vehicle control event					
Vehicle OBE		Other Vehicle OBEs		vehicle hazard event					
Vehicle OBE		Other Vehicle OBEs		wrong way vehicle detected					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: Environmental data sharing	Develop an internationally acceptable ITS application specification for sharing environmental data from vehicles to other local entities. The effort should consider efforts to date under both J2735 and DENM.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Other Vehicle OBEs		Vehicle OBE		vehicle environmental data					

Solution Name:		EU: DEN Service - FNTF/M5			Number of Issues:	6	Total Issue Severity:	28
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: Vehicle collision warning	Standardise the complete ITS application specification for exchanging alerts locally that vehicles are about to collide.		Urgent	European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle collision warning				

Solution Name:		EU: DEN Service - Local Broadcast Wireless (AU/EU)			Number of Issues:	6	Total Issue Severity:	23
This solution is used within the E.U., and Australia. It combines standards associated with EU: DEN Service with those for V-X: Local Broadcast Wireless (AU/EU). The EU: DEN Service standards include upper-layer standards required to implement V2x decentralized environmental notification information flows. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.								
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).		Urgent	Australia, European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Connected Vehicle Roadside Equipment		Vehicle OBE		lane closure information				
Connected Vehicle Roadside Equipment		Vehicle OBE		queue warning information				
Connected Vehicle Roadside Equipment		Vehicle OBE		reduced speed notification				
Connected Vehicle Roadside Equipment		Vehicle OBE		road closure information				
Connected Vehicle Roadside Equipment		Vehicle OBE		road weather advisories				
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle signage data				
Connected Vehicle Roadside Equipment		Vehicle OBE		work zone information				
Emergency Vehicle OBE		Vehicle OBE		vehicle signage data				
Maint and Constr Vehicle OBE		Vehicle OBE		vehicle signage data				
Maint and Constr Vehicle OBE		Vehicle OBE		work zone information				
Other Vehicle OBEs		Vehicle OBE		vehicle environmental data				
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle environmental data				
Vehicle OBE		Other Vehicle OBEs		vehicle environmental data				

Solution Name:	EU: DEN Service - Local Broadcast Wireless (AU/EU)	Number of Issues:	6	Total Issue Severity:	23
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not defined (high)	The performance rules are not defined for this information flow.	High	V-L: CAM and DENM	Standardise on a single solution for providing vehicle event information; currently this information can be transmitted using CAM or DENM.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Other Vehicle OBEs	Vehicle OBE	vehicle environmental data
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle environmental data
Vehicle OBE	Other Vehicle OBEs	vehicle environmental data

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Connected Vehicle Roadside Equipment	Vehicle OBE	lane closure information
Connected Vehicle Roadside Equipment	Vehicle OBE	queue warning information
Connected Vehicle Roadside Equipment	Vehicle OBE	reduced speed notification
Connected Vehicle Roadside Equipment	Vehicle OBE	road closure information
Connected Vehicle Roadside Equipment	Vehicle OBE	road weather advisories
Connected Vehicle Roadside Equipment	Vehicle OBE	vehicle signage data
Connected Vehicle Roadside Equipment	Vehicle OBE	work zone information
Emergency Vehicle OBE	Vehicle OBE	vehicle signage data
Maint and Constr Vehicle OBE	Vehicle OBE	vehicle signage data
Maint and Constr Vehicle OBE	Vehicle OBE	work zone information
Other Vehicle OBEs	Vehicle OBE	vehicle environmental data
Vehicle OBE	Connected Vehicle Roadside Equipment	vehicle environmental data
Vehicle OBE	Other Vehicle OBEs	vehicle environmental data



Solution Name:		EU: DEN Service - Local Broadcast Wireless (AU/EU)			Number of Issues:	6	Total Issue Severity:	23
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).		Urgent	Australia, European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Connected Vehicle Roadside Equipment		Vehicle OBE		lane closure information				
Connected Vehicle Roadside Equipment		Vehicle OBE		road closure information				
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle signage data				
Emergency Vehicle OBE		Vehicle OBE		vehicle signage data				
Maint and Constr Vehicle OBE		Vehicle OBE		vehicle signage data				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTF/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTF/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.		Urgent	Australia, European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Connected Vehicle Roadside Equipment		Vehicle OBE		lane closure information				
Connected Vehicle Roadside Equipment		Vehicle OBE		queue warning information				
Connected Vehicle Roadside Equipment		Vehicle OBE		reduced speed notification				
Connected Vehicle Roadside Equipment		Vehicle OBE		road closure information				
Connected Vehicle Roadside Equipment		Vehicle OBE		road weather advisories				
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle signage data				
Connected Vehicle Roadside Equipment		Vehicle OBE		work zone information				
Emergency Vehicle OBE		Vehicle OBE		vehicle signage data				
Maint and Constr Vehicle OBE		Vehicle OBE		vehicle signage data				
Maint and Constr Vehicle OBE		Vehicle OBE		work zone information				
Other Vehicle OBEs		Vehicle OBE		vehicle environmental data				
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle environmental data				
Vehicle OBE		Other Vehicle OBEs		vehicle environmental data				

Solution Name:		EU: DEN Service - Local Broadcast Wireless (AU/EU)				Number of Issues:	6	Total Issue Severity:	23
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Environmental data sharing	Develop an internationally acceptable ITS application specification for sharing environmental data from vehicles to other local entities. The effort should consider efforts to date under both J2735 and DENM.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Other Vehicle OBEs		Vehicle OBE		vehicle environmental data					
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle environmental data					
Vehicle OBE		Other Vehicle OBEs		vehicle environmental data					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: US traveler information	Develop an ITS application specification for providing in-vehicle signage and other traveler information to the vehicle from the roadside. This will also need to address issues such as when and how to locally generate traveler information messages and how to sign these messages.				Urgent	United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		lane closure information					
Connected Vehicle Roadside Equipment		Vehicle OBE		road closure information					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: DENM	Develop an internationally acceptable ITS application specification for DENM for each use case where it applies and when the DENM should include optional fields for each condition.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		reduced speed notification					
Connected Vehicle Roadside Equipment		Vehicle OBE		road closure information					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: Environmental data sharing	Develop an internationally acceptable ITS application specification for sharing environmental data from vehicles to other local entities. The effort should consider efforts to date under both J2735 and DENM.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Other Vehicle OBEs		Vehicle OBE		vehicle environmental data					
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle environmental data					
Vehicle OBE		Other Vehicle OBEs		vehicle environmental data					

Solution Name:		EU: DEN Service - Local Broadcast Wireless (AU/EU)				Number of Issues:	6	Total Issue Severity:	23
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: EU vehicle signage data	Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Connected Vehicle Roadside Equipment		Vehicle OBE			vehicle signage data				
Emergency Vehicle OBE		Vehicle OBE			vehicle signage data				
Maint and Constr Vehicle OBE		Vehicle OBE			vehicle signage data				

Solution Name:

EU: DEN Service - Mobile Internet (X.509)

Number of Issues:

5

Total Issue Severity:

25

This solution is used within the E.U., and Australia. It combines standards associated with EU: DEN Service with those for I-M: Mobile Internet (X.509). The EU: DEN Service standards include upper-layer standards required to implement V2x decentralized environmental notification information flows. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Intneret connection method.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data/comm profile pairing	There are ambiguities as to how to (or if one should) couple the upper-layer standards defined in this solution with the indicated lower-layer standards.	High	C-V: Work zone status	Develop an ITS application specification for a maintenance and construction vehicle to report and update the status of a work zone to a centre.	Near-term	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Maint and Constr Management Center		Vehicle OBE		work zone information		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Traffic Management Center		Vehicle OBE		vehicle signage data		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not defined (high)	The performance rules are not defined for this information flow.	High	V-L: CAM and DENM	Standardise on a single solution for providing vehicle event information; currently this information can be transmitted using CAM or DENM.	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Vehicle OBE		Transportation Information Center		vehicle environmental data		

Solution Name:		EU: DEN Service - Mobile Internet (X.509)				Number of Issues:	5	Total Issue Severity:	25														
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability															
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).			Urgent	Australia, European Union															
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Traffic Management Center</td><td>Vehicle OBE</td><td>lane closure information</td></tr><tr><td>Traffic Management Center</td><td>Vehicle OBE</td><td>vehicle signage data</td></tr></table>									Source	Destination	Flow Name	Traffic Management Center	Vehicle OBE	lane closure information	Traffic Management Center	Vehicle OBE	vehicle signage data						
Source	Destination	Flow Name																					
Traffic Management Center	Vehicle OBE	lane closure information																					
Traffic Management Center	Vehicle OBE	vehicle signage data																					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability															
Data/comm profile pairing	There are ambiguities as to how to (or if one should) couple the upper-layer standards defined in this solution with the indicated lower-layer standards.	High	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).			Urgent	Australia, European Union															
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Maint and Constr Management Center</td><td>Vehicle OBE</td><td>work zone information</td></tr><tr><td>Traffic Management Center</td><td>Vehicle OBE</td><td>lane closure information</td></tr><tr><td>Traffic Management Center</td><td>Vehicle OBE</td><td>vehicle signage data</td></tr><tr><td>Vehicle OBE</td><td>Transportation Information Center</td><td>vehicle environmental data</td></tr></table>									Source	Destination	Flow Name	Maint and Constr Management Center	Vehicle OBE	work zone information	Traffic Management Center	Vehicle OBE	lane closure information	Traffic Management Center	Vehicle OBE	vehicle signage data	Vehicle OBE	Transportation Information Center	vehicle environmental data
Source	Destination	Flow Name																					
Maint and Constr Management Center	Vehicle OBE	work zone information																					
Traffic Management Center	Vehicle OBE	lane closure information																					
Traffic Management Center	Vehicle OBE	vehicle signage data																					
Vehicle OBE	Transportation Information Center	vehicle environmental data																					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability															
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: Situation data	Develop an internationally acceptable ITS application specification for the use case of distributing collected situation data (e.g., BSMs/CAMs, sensors, probe data, etc.) between vehicles and remote interested parties (e.g., centres).			Urgent	Australia, European Union, United States															
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Vehicle OBE</td><td>Transportation Information Center</td><td>vehicle environmental data</td></tr></table>									Source	Destination	Flow Name	Vehicle OBE	Transportation Information Center	vehicle environmental data									
Source	Destination	Flow Name																					
Vehicle OBE	Transportation Information Center	vehicle environmental data																					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability															
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.			Urgent	Australia, European Union															
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Traffic Management Center</td><td>Vehicle OBE</td><td>lane closure information</td></tr></table>									Source	Destination	Flow Name	Traffic Management Center	Vehicle OBE	lane closure information									
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Traffic Management Center	Vehicle OBE	lane closure information																					

Solution Name:		EU: DEN Service - Mobile Internet (X.509)			Number of Issues:	5	Total Issue Severity:	25	
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability	
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: Environmental data sharing	Develop an internationally acceptable ITS application specification for sharing environmental data from vehicles to other local entities. The effort should consider efforts to date under both J2735 and DENM.			Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source			Destination			Flow Name			
Vehicle OBE			Transportation Information Center			vehicle environmental data			

Solution Name:	EU: Electric Charging Hot Spot - EU-ICIP-C2F	Number of Issues:	2	Total Issue Severity:	16
This solution is used within the European Union. It combines standards associated with EU: Electric Charging Hot Spot with those for I-F: EU-ICIP-C2F. The EU: Electric Charging Hot Spot standards include upper-layer standards required to advertise the existence of a electric vehicle charging station. The I-F: EU-ICIP-C2F standards include lower-layer placeholder for a European solution currently under development. It is planned that the EU-ICIP will provide guidance as to what lower-layer standards should be used in various environments, but it is not expected to directly specify these layers.					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security not provided	The solution does not provide any significant security and a communications link using this solution is easily hacked.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination		Flow Name		
	Connected Vehicle Roadside Equipment	Electric Charging Station		vehicle charging profile		
	Electric Charging Station	Connected Vehicle Roadside Equipment		current charging status		
	Transportation Information Center	Connected Vehicle Roadside Equipment		electric charging services inventory		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Draft not available (Critical)	The standards development organization has established a work item for the subject standard but a draft is not available for this critical feature to enable the interface. The draft may be missing due to the work item being new or simply a lack of activity on the work item.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination		Flow Name		
	Connected Vehicle Roadside Equipment	Electric Charging Station		vehicle charging profile		
	Electric Charging Station	Connected Vehicle Roadside Equipment		current charging status		
	Transportation Information Center	Connected Vehicle Roadside Equipment		electric charging services inventory		

Solution Name:	EU: Electric Charging Hot Spot - Local Broadcast Wireless (AU/EU)	Number of Issues:	3	Total Issue Severity:	9
This solution is used within the E.U., and Australia. It combines standards associated with EU: Electric Charging Hot Spot with those for V-X: Local Broadcast Wireless (AU/EU). The EU: Electric Charging Hot Spot standards include upper-layer standards required to advertise the existence of a electric vehicle charging station. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.					

Solution Name:		EU: Electric Charging Hot Spot - Local Broadcast Wireless (AU/EU)				Number of Issues:	3	Total Issue Severity:	9
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		current charging status					
Connected Vehicle Roadside Equipment		Vehicle OBE		electric charging services inventory					
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle charging profile					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		current charging status					
Connected Vehicle Roadside Equipment		Vehicle OBE		electric charging services inventory					
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle charging profile					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		current charging status					
Connected Vehicle Roadside Equipment		Vehicle OBE		electric charging services inventory					
Vehicle OBE		Connected Vehicle Roadside Equipment		vehicle charging profile					
Solution Name:		EU: Electric Charging Management - EU-ICIP-C2F				Number of Issues:	2	Total Issue Severity:	16
This solution is used within the European Union. It combines standards associated with EU: Electric Charging Management with those for I-F: EU-ICIP-C2F. The EU: Electric Charging Management standards include upper-layer standards required to support the management of electric vehicle charging. The I-F: EU-ICIP-C2F standards include lower-layer placeholder for a European solution currently under development. It is planned that the EU-ICIP will provide guidance as to what lower-layer standards should be used in various environments, but it is not expected to directly specify these layers.									
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Security not provided	The solution does not provide any significant security and a communications link using this solution is easily hacked.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.				Urgent	Australia, European Union, United States



<b>Solution Name:</b>	<b>EU: Electric Charging Management - EU-ICIP-C2F</b>	<b>Number of Issues:</b>	2	<b>Total Issue Severity:</b>	16
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	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination	Flow Name			
	Connected Vehicle Roadside Equipment	Electric Charging Station	vehicle charging profile			
Electric Charging Station		Connected Vehicle Roadside Equipment	current charging status			
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Draft not available (Critical)	The standards development organization has established a work item for the subject standard but a draft is not available for this critical feature to enable the interface. The draft may be missing due to the work item being new or simply a lack of activity on the work item.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination	Flow Name			
	Connected Vehicle Roadside Equipment	Electric Charging Station	vehicle charging profile			
Electric Charging Station		Connected Vehicle Roadside Equipment	current charging status			

<b>Solution Name:</b>	<b>EU: Electric Charging Management - Local Broadcast Wireless (AU/EU)</b>	<b>Number of Issues:</b>	3	<b>Total Issue Severity:</b>	9
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This solution is used within the E.U., and Australia. It combines standards associated with EU: Electric Charging Management with those for V-X: Local Broadcast Wireless (AU/EU). The EU: Electric Charging Management standards include upper-layer standards required to support the management of electric vehicle charging. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination	Flow Name			
	Connected Vehicle Roadside Equipment	Vehicle OBE	current charging status			
Vehicle OBE		Connected Vehicle Roadside Equipment	vehicle charging profile			
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination	Flow Name			
	Connected Vehicle Roadside Equipment	Vehicle OBE	current charging status			
Vehicle OBE		Connected Vehicle Roadside Equipment	vehicle charging profile			

Solution Name:		EU: Electric Charging Management - Local Broadcast Wireless (AU/EU)				Number of Issues:	3	Total Issue Severity:	9
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Connected Vehicle Roadside Equipment		Vehicle OBE			current charging status				
Vehicle OBE		Connected Vehicle Roadside Equipment			vehicle charging profile				

Solution Name:	EU: In-Vehicle Information - Local Broadcast Wireless (AU/EU)	Number of Issues:	6	Total Issue Severity:	23
This solution is used within the E.U., and Australia. It combines standards associated with EU: In-Vehicle Information with those for V-X: Local Broadcast Wireless (AU/EU). The EU: In-Vehicle Information standards include upper-layer standards required to provide a visualisation of static and/or dynamic traffic sign information inside a vehicle. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Connected Vehicle Roadside Equipment		Vehicle OBE		lane closure information		
Connected Vehicle Roadside Equipment		Vehicle OBE		reduced speed notification		
Connected Vehicle Roadside Equipment		Vehicle OBE		road closure information		
Connected Vehicle Roadside Equipment		Vehicle OBE		speed management information		
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle signage data		
Connected Vehicle Roadside Equipment		Vehicle OBE		work zone information		
Emergency Vehicle OBE		Vehicle OBE		vehicle signage data		
Maint and Constr Vehicle OBE		Vehicle OBE		vehicle signage data		
Maint and Constr Vehicle OBE		Vehicle OBE		work zone information		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not defined (high)	The performance rules are not defined for this information flow.	High	V-L: EU vehicle signage data	Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC.	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle signage data		
Emergency Vehicle OBE		Vehicle OBE		vehicle signage data		
Maint and Constr Vehicle OBE		Vehicle OBE		vehicle signage data		



Solution Name:		EU: In-Vehicle Information - Local Broadcast Wireless (AU/EU)			Number of Issues:	6	Total Issue Severity:	23
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).		Urgent	Australia, European Union, United States	
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution							
Source	Destination	Flow Name						
Connected Vehicle Roadside Equipment	Vehicle OBE	lane closure information						
Connected Vehicle Roadside Equipment	Vehicle OBE	reduced speed notification						
Connected Vehicle Roadside Equipment	Vehicle OBE	road closure information						
Connected Vehicle Roadside Equipment	Vehicle OBE	speed management information						
Connected Vehicle Roadside Equipment	Vehicle OBE	vehicle signage data						
Connected Vehicle Roadside Equipment	Vehicle OBE	work zone information						
Emergency Vehicle OBE	Vehicle OBE	vehicle signage data						
Maint and Constr Vehicle OBE	Vehicle OBE	vehicle signage data						
Maint and Constr Vehicle OBE	Vehicle OBE	work zone information						
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).		Urgent	Australia, European Union	
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution							
Source	Destination	Flow Name						
Connected Vehicle Roadside Equipment	Vehicle OBE	lane closure information						
Connected Vehicle Roadside Equipment	Vehicle OBE	road closure information						
Connected Vehicle Roadside Equipment	Vehicle OBE	speed management information						
Connected Vehicle Roadside Equipment	Vehicle OBE	vehicle signage data						
Emergency Vehicle OBE	Vehicle OBE	vehicle signage data						
Maint and Constr Vehicle OBE	Vehicle OBE	vehicle signage data						

Solution Name:		EU: In-Vehicle Information - Local Broadcast Wireless (AU/EU)			Number of Issues:	6	Total Issue Severity:	23
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTF/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTF/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.		Urgent	Australia, European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Connected Vehicle Roadside Equipment		Vehicle OBE		lane closure information				
Connected Vehicle Roadside Equipment		Vehicle OBE		reduced speed notification				
Connected Vehicle Roadside Equipment		Vehicle OBE		road closure information				
Connected Vehicle Roadside Equipment		Vehicle OBE		speed management information				
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle signage data				
Connected Vehicle Roadside Equipment		Vehicle OBE		work zone information				
Emergency Vehicle OBE		Vehicle OBE		vehicle signage data				
Maint and Constr Vehicle OBE		Vehicle OBE		vehicle signage data				
Maint and Constr Vehicle OBE		Vehicle OBE		work zone information				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: US traveler information	Develop an ITS application specification for providing in-vehicle signage and other traveler information to the vehicle from the roadside. This will also need to address issues such as when and how to locally generate traveler information messages and how to sign these messages.		Urgent	United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Connected Vehicle Roadside Equipment		Vehicle OBE		lane closure information				
Connected Vehicle Roadside Equipment		Vehicle OBE		road closure information				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: EU vehicle signage data	Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC.		Urgent	Australia, European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Connected Vehicle Roadside Equipment		Vehicle OBE		reduced speed notification				
Connected Vehicle Roadside Equipment		Vehicle OBE		speed management information				
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle signage data				
Emergency Vehicle OBE		Vehicle OBE		vehicle signage data				
Maint and Constr Vehicle OBE		Vehicle OBE		vehicle signage data				

Solution Name:		EU: In-Vehicle Information - Local Broadcast Wireless (AU/EU)				Number of Issues:	6	Total Issue Severity:	23		
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability	
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.		Medium	V-L: IVI	Develop an ITS application specification for in-vehicle information for each applicable use case.				Urgent	Australia, European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution											
Source			Destination			Flow Name					
Connected Vehicle Roadside Equipment			Vehicle OBE			road closure information					

Solution Name:		EU: In-Vehicle Information - Mobile Internet (X.509)				Number of Issues:	5	Total Issue Severity:	25												
This solution is used within the E.U., and Australia. It combines standards associated with EU: In-Vehicle Information with those for I-M: Mobile Internet (X.509). The EU: In-Vehicle Information standards include upper-layer standards required to provide a visualisation of static and/or dynamic traffic sign information inside a vehicle. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Intneret connection method.																					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability												
Performance not defined (high)	The performance rules are not defined for this information flow.	High	V-L: EU vehicle signage data	Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC.				Urgent	Australia, European Union												
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Traffic Management Center</td><td>Vehicle OBE</td><td>vehicle signage data</td></tr></table>										Source	Destination	Flow Name	Traffic Management Center	Vehicle OBE	vehicle signage data						
Source	Destination	Flow Name																			
Traffic Management Center	Vehicle OBE	vehicle signage data																			
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability												
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).				Urgent	Australia, European Union												
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Traffic Management Center</td><td>Vehicle OBE</td><td>lane closure information</td></tr><tr><td>Traffic Management Center</td><td>Vehicle OBE</td><td>speed management information</td></tr><tr><td>Traffic Management Center</td><td>Vehicle OBE</td><td>vehicle signage data</td></tr></table>										Source	Destination	Flow Name	Traffic Management Center	Vehicle OBE	lane closure information	Traffic Management Center	Vehicle OBE	speed management information	Traffic Management Center	Vehicle OBE	vehicle signage data
Source	Destination	Flow Name																			
Traffic Management Center	Vehicle OBE	lane closure information																			
Traffic Management Center	Vehicle OBE	speed management information																			
Traffic Management Center	Vehicle OBE	vehicle signage data																			

Solution Name:		EU: In-Vehicle Information - Mobile Internet (X.509)				Number of Issues:	5	Total Issue Severity:	25
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data/comm profile pairing	There are ambiguities as to how to (or if one should) couple the upper-layer standards defined in this solution with the indicated lower-layer standards.	High	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Maint and Constr Management Center		Vehicle OBE		work zone information					
Traffic Management Center		Vehicle OBE		lane closure information					
Traffic Management Center		Vehicle OBE		speed management information					
Traffic Management Center		Vehicle OBE		vehicle signage data					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Traffic Management Center		Vehicle OBE		lane closure information					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Traffic Management Center		Vehicle OBE		speed management information					
Traffic Management Center		Vehicle OBE		vehicle signage data					

Solution Name:	EU: OCIT-O Signal Control - OCIT-O	Number of Issues:	3	Total Issue Severity:	43
This solution is used within the European Union. It combines standards associated with EU: OCIT-O Signal Control with those for I-F: ODG-OCIT-O. The EU: OCIT-O Signal Control standards include upper-layer standards required to implement center-to-field communications for traffic signals. The I-F: ODG-OCIT-O standards include lower-layer ODG proprietary protocol used within the EU for road traffic data exchange between central stations and field devices.					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security not provided	The solution does not provide any significant security and a communications link using this solution is easily hacked.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
ITS Roadway Equipment		Connected Vehicle Roadside Equipment		intersection control status		
ITS Roadway Equipment		Connected Vehicle Roadside Equipment		ITS roadway equipment information		

Solution Name:	EU: OCIT-O Signal Control - OCIT-O	Number of Issues:	3	Total Issue Severity:	43
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ITS Roadway Equipment	Other Traffic Signal Controller	local priority request details
ITS Roadway Equipment	Traffic Management Center	right-of-way request notification
ITS Roadway Equipment	Traffic Management Center	signal control status
Other Traffic Signal Controller	ITS Roadway Equipment	local priority request details
Traffic Management Center	ITS Roadway Equipment	signal control commands
Traffic Management Center	ITS Roadway Equipment	signal control device configuration
Traffic Management Center	ITS Roadway Equipment	signal control plans
Traffic Management Center	ITS Roadway Equipment	signal system configuration

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: EU signal operations	Develop an ITS application specification for exchanging configuration, plans, status, and commands for signal control and signal systems using the secure centre-to-field protocol.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution			
Source	Destination	Flow Name	
ITS Roadway Equipment	Traffic Management Center	right-of-way request notification	
ITS Roadway Equipment	Traffic Management Center	signal control status	
Traffic Management Center	ITS Roadway Equipment	signal control commands	
Traffic Management Center	ITS Roadway Equipment	signal control device configuration	
Traffic Management Center	ITS Roadway Equipment	signal control plans	
Traffic Management Center	ITS Roadway Equipment	signal system configuration	

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Not an open standard	The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Medium	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution			
Source	Destination	Flow Name	
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	intersection control status	
ITS Roadway Equipment	Connected Vehicle Roadside Equipment	ITS roadway equipment information	
ITS Roadway Equipment	Other Traffic Signal Controller	local priority request details	
ITS Roadway Equipment	Traffic Management Center	right-of-way request notification	
ITS Roadway Equipment	Traffic Management Center	signal control status	
Other Traffic Signal Controller	ITS Roadway Equipment	local priority request details	
Traffic Management Center	ITS Roadway Equipment	signal control commands	
Traffic Management Center	ITS Roadway Equipment	signal control device configuration	
Traffic Management Center	ITS Roadway Equipment	signal control plans	
Traffic Management Center	ITS Roadway Equipment	signal system configuration	

Solution Name:	EU: Probe Data - Local Broadcast Wireless (AU/EU)	Number of Issues:	4	Total Issue Severity:	12
Solution Name:	EU: Probe Data - Local Broadcast Wireless (AU/EU)	Number of Issues:	4	Total Issue Severity:	12

This solution is used within the E.U., and Australia. It combines standards associated with EU: Probe Data with those for V-X: Local Broadcast Wireless (AU/EU). The EU: Probe Data standards include upper-layer standards required to provide detailed probe data information from a vehicle. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
SourceDestinationFlow Name						
Vehicle OBEConnected Vehicle Roadside Equipmentvehicle situation data						
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
SourceDestinationFlow Name						
Vehicle OBEConnected Vehicle Roadside Equipmentvehicle situation data						
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTTP/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTTP/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
SourceDestinationFlow Name						
Vehicle OBEConnected Vehicle Roadside Equipmentvehicle situation data						
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: Situation data	Develop an internationally acceptable ITS application specification for the use case of distributing collected situation data (e.g., BSMS/CAMs, sensors, probe data, etc.) between vehicles and remote interested parties (e.g., centres).	Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
SourceDestinationFlow Name						
Vehicle OBEConnected Vehicle Roadside Equipmentvehicle situation data						

Solution Name:	EU: Probe Data - Mobile Internet (X.509)	Number of Issues:	1	Total Issue Severity:	3
This solution is used within the U.S., E.U., and Australia. It combines standards associated with EU: Probe Data with those for I-M: Mobile Internet (X.509). The EU: Probe Data standards include upper-layer standards required to provide detailed probe data information from a vehicle. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509					

<b>Solution Name:</b>	<b>EU: Probe Data - Mobile Internet (X.509)</b>	<b>Number of Issues:</b>	1	<b>Total Issue Severity:</b>	3
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certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Intneret connection method.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: Situation data	Develop an internationally acceptable ITS application specification for the use case of distributing collected situation data (e.g., BSMS/CAMs, sensors, probe data, etc.) between vehicles and remote interested parties (e.g., centres).	Urgent	Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination		Flow Name		
	Vehicle OBE	Transportation Information Center		vehicle situation data		

<b>Solution Name:</b>	<b>EU: Signal Control Messages - BTP/GeoNetworking/G5</b>	<b>Number of Issues:</b>	6	<b>Total Issue Severity:</b>	14
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This solution is used within the European Union. It combines standards associated with EU: Signal Control Messages with those for V-X: BTP/GeoNetworking/G5. The EU: Signal Control Messages standards include upper-layer standards required to implement signal control information flows. The V-X: BTP/GeoNetworking/G5 standards include lower-layer standards that support broadcast, near constant, low latency vehicle-to-vehicle and vehicle-to-infrastructure communications using the ETSI GeoNetworking Bundle over the 5.9GHz spectrum.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination		Flow Name		
	Connected Vehicle Roadside Equipment	Commercial Vehicle OBE		intersection status		
	Connected Vehicle Roadside Equipment	Emergency Vehicle OBE		intersection status		
	Connected Vehicle Roadside Equipment	ITS Roadway Equipment		intersection status monitoring		
	Connected Vehicle Roadside Equipment	Transit Vehicle OBE		intersection status		
	Connected Vehicle Roadside Equipment	Vehicle OBE		intersection status		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination		Flow Name		
	Connected Vehicle Roadside Equipment	Commercial Vehicle OBE		intersection status		
	Connected Vehicle Roadside Equipment	Emergency Vehicle OBE		intersection status		
	Connected Vehicle Roadside Equipment	ITS Roadway Equipment		intersection status monitoring		
	Connected Vehicle Roadside Equipment	Transit Vehicle OBE		intersection status		
	Connected Vehicle Roadside Equipment	Vehicle OBE		intersection status		



Solution Name:		EU: Signal Control Messages - BTP/GeoNetworking/G5				Number of Issues:	6	Total Issue Severity:	14
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTF/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTF/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Commercial Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		Emergency Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		ITS Roadway Equipment		intersection status monitoring					
Connected Vehicle Roadside Equipment		Transit Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		Vehicle OBE		intersection status					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Protocol features partly not applicable in the given context	A feature of the protocol is not fully applicable in the given context, e.g. GeoNetworking multi-hop forwarding in 5.9 GHz channels.	Low	V-L: GeoNetworking	Determine how to implement GeoNetworking without unduly flooding the network and, if feasible, prove out concept.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Commercial Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		Emergency Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		ITS Roadway Equipment		intersection status monitoring					
Connected Vehicle Roadside Equipment		Transit Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		Vehicle OBE		intersection status					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data not defined in standard format	The definition of data concepts should conform to ISO 14817-1 to promote reuse among ITS.	Low	V-L: Update SAE J2735 to conform to ISO 14817	Update the format of the standard to conform to the rules of ISO 14817-1 so that data can easily be placed in the CIDCR and understood by all ITS experts				Near-term	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Commercial Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		Emergency Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		ITS Roadway Equipment		intersection status monitoring					
Connected Vehicle Roadside Equipment		Transit Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		Vehicle OBE		intersection status					



<b>Solution Name:</b>	<b>EU: Signal Control Messages - BTP/GeoNetworking/G5</b>	<b>Number of Issues:</b>	6	<b>Total Issue Severity:</b>	14
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: EU signal operations	Develop an ITS application specification for providing intersection status information to vehicles from the roadside.	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Connected Vehicle Roadside Equipment		Commercial Vehicle OBE		intersection status		
Connected Vehicle Roadside Equipment		Emergency Vehicle OBE		intersection status		
Connected Vehicle Roadside Equipment		Transit Vehicle OBE		intersection status		
Connected Vehicle Roadside Equipment		Vehicle OBE		intersection status		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	I-F: Signal conflict prevention	Develop an internationally acceptable ITS application specification for monitoring intersection status information to prevent conflicts between physical displays and broadcast information.	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Connected Vehicle Roadside Equipment		ITS Roadway Equipment		intersection status monitoring		

<b>Solution Name:</b>	<b>EU: Signal Control Messages - CEN 5.8Ghz DSRC</b>	<b>Number of Issues:</b>	3	<b>Total Issue Severity:</b>	7
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This solution is used within the European Union. It combines standards associated with EU: Signal Control Messages with those for V-X: CEN 5.8Ghz DSRC. The EU: Signal Control Messages standards include upper-layer standards required to implement signal control information flows. The V-X: CEN 5.8Ghz DSRC standards include lower-layer standards that are compliant with ISO 21217 with the complication that remote tachographs are based on the CEN-DSRC at 5.8 GHz.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: CAM and SRM	Standardise on a single solution for requesting signal priority; currently this request can be transmitted using CAM or SRM.	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Commercial Vehicle OBE		Connected Vehicle Roadside Equipment		local signal priority request		
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data not defined in standard format	The definition of data concepts should conform to ISO 14817-1 to promote reuse among ITS.	Low	V-L: Update SAE J2735 to conform to ISO 14817	Update the format of the standard to conform to the rules of ISO 14817-1 so that data can easily be placed in the CIDCR and understood by all ITS experts	Near-term	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Commercial Vehicle OBE		Connected Vehicle Roadside Equipment		local signal priority request		
Connected Vehicle Roadside Equipment		Commercial Vehicle OBE		intersection status		
Connected Vehicle Roadside Equipment		Commercial Vehicle OBE		signal priority status		

Solution Name:		EU: Signal Control Messages - CEN 5.8Ghz DSRC				Number of Issues:	3	Total Issue Severity:	7
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: EU signal operations	Develop an ITS application specification for providing intersection status information to vehicles from the roadside.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Commercial Vehicle OBE		intersection status					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: EU signal priority	Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Commercial Vehicle OBE		Connected Vehicle Roadside Equipment		local signal priority request					
Connected Vehicle Roadside Equipment		Commercial Vehicle OBE		signal priority status					
Solution Name:		EU: Signal Control Messages - DATEX Messaging TCP				Number of Issues:	4	Total Issue Severity:	39
This solution is used within the European Union. It combines standards associated with EU: Signal Control Messages with those for C-C: DATEX Messaging TCP. The EU: Signal Control Messages standards include upper-layer standards required to implement signal control information flows. The C-C: DATEX Messaging TCP standards include lower-layer standards that support partially secure communications between two centres as commonly used in Europe.									
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.  Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Map Update System		Center		intersection geometry					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-C: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for updating maps, roadway geometry, and intersection geometry among centres (e.g., between a Map Update System and a centre).				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Map Update System		Center		intersection geometry					

Solution Name:		EU: Signal Control Messages - DATEX Messaging TCP				Number of Issues:	4	Total Issue Severity:	39
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data not defined in standard format	The definition of data concepts should conform to ISO 14817-1 to promote reuse among ITS.	Low	V-L: Update SAE J2735 to conform to ISO 14817	Update the format of the standard to conform to the rules of ISO 14817-1 so that data can easily be placed in the CIDCR and understood by all ITS experts				Near-term	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Map Update System		Center		intersection geometry					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-C: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for updating maps, roadway geometry, and intersection geometry among centres (e.g., between a Map Update System and a centre).				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Map Update System		Center		intersection geometry					

Solution Name:

EU: Signal Control Messages - EU-ICIP-C2F

Number of Issues:

5

Total Issue Severity:

28

This solution is used within the European Union. It combines standards associated with EU: Signal Control Messages with those for I-F: EU-ICIP-C2F. The EU: Signal Control Messages standards include upper-layer standards required to implement signal control information flows. The I-F: EU-ICIP-C2F standards include lower-layer placeholder for a European solution currently under development. It is planned that the EU-ICIP will provide guidance as to what lower-layer standards should be used in various environments, but it is not expected to directly specify these layers.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security not provided	The solution does not provide any significant security and a communications link using this solution is easily hacked.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.	Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Map Update System		Connected Vehicle Roadside Equipment		intersection geometry		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data/comm profile pairing	There are ambiguities as to how to (or if one should) couple the upper-layer standards defined in this solution with the indicated lower-layer standards.	High	I-F: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry between a centres (e.g., a Map Update System) and field equipment.	Urgent	Australia, European Union, United States, Japan
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Map Update System		Connected Vehicle Roadside Equipment		intersection geometry		

Solution Name:		EU: Signal Control Messages - EU-ICIP-C2F				Number of Issues:	5	Total Issue Severity:	28
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Draft not available (Critical)	The standards development organization has established a work item for the subject standard but a draft is not available for this critical feature to enable the interface. The draft may be missing due to the work item being new or simply a lack of activity on the work item.	High	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Map Update System		Connected Vehicle Roadside Equipment			intersection geometry				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data not defined in standard format	The definition of data concepts should conform to ISO 14817-1 to promote reuse among ITS.	Low	V-L: Update SAE J2735 to conform to ISO 14817	Update the format of the standard to conform to the rules of ISO 14817-1 so that data can easily be placed in the CIDCR and understood by all ITS experts				Near-term	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Map Update System		Connected Vehicle Roadside Equipment			intersection geometry				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	I-F: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry between a centres (e.g., a Map Update System) and field equipment.				Urgent	Australia, European Union, United States, Japan
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Map Update System		Connected Vehicle Roadside Equipment			intersection geometry				

Solution Name:		EU: Signal Control Messages - FNTF/M5			Number of Issues:	4	Total Issue Severity:	10	
This solution is used within the European Union. It combines standards associated with EU: Signal Control Messages with those for V-X: FNTF/M5. The EU: Signal Control Messages standards include upper-layer standards required to implement signal control information flows. The V-X: FNTF/M5 standards include lower-layer standards that support connectionless, broadcast and unicast, near constant, ultra-low latency vehicle-to-any communications within ~300m using Fast Network Transport Profile (FNTF) over the 5 GHz spectrum as allocated within a region. The broadcast mode is interoperable with WAVE WSMP. The M5 radio of this profile can receive ITS G5 frames.									
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.		Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).			Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source			Destination			Flow Name			
Connected Vehicle Roadside Equipment			Commercial Vehicle OBE			intersection status			
Connected Vehicle Roadside Equipment			Emergency Vehicle OBE			intersection status			
Connected Vehicle Roadside Equipment			ITS Roadway Equipment			intersection status monitoring			

Solution Name:		EU: Signal Control Messages - FNTF/M5				Number of Issues:	4	Total Issue Severity:	10
		Connected Vehicle Roadside Equipment		Transit Vehicle OBE		intersection status			
		Connected Vehicle Roadside Equipment		Vehicle OBE		intersection status			
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability		
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTF/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTF/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.		Urgent	Australia, European Union		
		Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution							
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Commercial Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		Emergency Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		ITS Roadway Equipment		intersection status monitoring					
Connected Vehicle Roadside Equipment		Transit Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		Vehicle OBE		intersection status					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability		
Data not defined in standard format	The definition of data concepts should conform to ISO 14817-1 to promote reuse among ITS.	Low	V-L: Update SAE J2735 to conform to ISO 14817	Update the format of the standard to conform to the rules of ISO 14817-1 so that data can easily be placed in the CIDCR and understood by all ITS experts		Near-term	Australia, European Union, United States		
		Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution							
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Commercial Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		Emergency Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		ITS Roadway Equipment		intersection status monitoring					
Connected Vehicle Roadside Equipment		Transit Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		Vehicle OBE		intersection status					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability		
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: EU signal operations	Develop an ITS application specification for providing intersection status information to vehicles from the roadside.		Urgent	Australia, European Union		
		Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution							
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Commercial Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		Emergency Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		Transit Vehicle OBE		intersection status					
Connected Vehicle Roadside Equipment		Vehicle OBE		intersection status					

Solution Name:		EU: Signal Control Messages - FNTF/M5				Number of Issues:	4	Total Issue Severity:	10
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	I-F: Signal conflict prevention	Develop an internationally acceptable ITS application specification for monitoring intersection status information to prevent conflicts between physical displays and broadcast information.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		ITS Roadway Equipment		intersection status monitoring					

Solution Name:

EU: Signal Control Messages - Local Broadcast Wireless (AU/EU)

Number of Issues:

6

Total Issue Severity:

16

This solution is used within the European Union. It combines standards associated with EU: Signal Control Messages with those for V-X: Local Broadcast Wireless (AU/EU). The EU: Signal Control Messages standards include upper-layer standards required to implement signal control information flows. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Commercial Vehicle OBE		Connected Vehicle Roadside Equipment		local signal priority request		
Connected Vehicle Roadside Equipment		Commercial Vehicle OBE		signal priority status		
Connected Vehicle Roadside Equipment		Emergency Vehicle OBE		signal priority status		
Connected Vehicle Roadside Equipment		Personal Information Device		intersection geometry		
Connected Vehicle Roadside Equipment		Transit Vehicle OBE		signal priority status		
Connected Vehicle Roadside Equipment		Vehicle OBE		intersection geometry		
Emergency Vehicle OBE		Connected Vehicle Roadside Equipment		local signal preemption request		
Transit Vehicle OBE		Connected Vehicle Roadside Equipment		local signal priority request		

Solution Name:	EU: Signal Control Messages - Local Broadcast Wireless (AU/EU)	Number of Issues:	6	Total Issue Severity:	16
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Commercial Vehicle OBE	Connected Vehicle Roadside Equipment	local signal priority request
Connected Vehicle Roadside Equipment	Commercial Vehicle OBE	signal priority status
Connected Vehicle Roadside Equipment	Emergency Vehicle OBE	signal priority status
Connected Vehicle Roadside Equipment	Personal Information Device	intersection geometry
Connected Vehicle Roadside Equipment	Transit Vehicle OBE	signal priority status
Connected Vehicle Roadside Equipment	Vehicle OBE	intersection geometry
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request
Transit Vehicle OBE	Connected Vehicle Roadside Equipment	local signal priority request

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTF/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTF/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Commercial Vehicle OBE	Connected Vehicle Roadside Equipment	local signal priority request
Connected Vehicle Roadside Equipment	Commercial Vehicle OBE	signal priority status
Connected Vehicle Roadside Equipment	Emergency Vehicle OBE	signal priority status
Connected Vehicle Roadside Equipment	Personal Information Device	intersection geometry
Connected Vehicle Roadside Equipment	Transit Vehicle OBE	signal priority status
Connected Vehicle Roadside Equipment	Vehicle OBE	intersection geometry
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request
Transit Vehicle OBE	Connected Vehicle Roadside Equipment	local signal priority request

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: CAM and SRM	Standardise on a single solution for requesting signal priority; currently this request can be transmitted using CAM or SRM.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution		
Source	Destination	Flow Name
Commercial Vehicle OBE	Connected Vehicle Roadside Equipment	local signal priority request
Emergency Vehicle OBE	Connected Vehicle Roadside Equipment	local signal preemption request
Transit Vehicle OBE	Connected Vehicle Roadside Equipment	local signal priority request



Solution Name:		EU: Signal Control Messages - Local Broadcast Wireless (AU/EU)				Number of Issues:	6	Total Issue Severity:	16
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data not defined in standard format	The definition of data concepts should conform to ISO 14817-1 to promote reuse among ITS.	Low	V-L: Update SAE J2735 to conform to ISO 14817	Update the format of the standard to conform to the rules of ISO 14817-1 so that data can easily be placed in the CIDCR and understood by all ITS experts				Near-term	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Commercial Vehicle OBE		Connected Vehicle Roadside Equipment		local signal priority request					
Connected Vehicle Roadside Equipment		Commercial Vehicle OBE		signal priority status					
Connected Vehicle Roadside Equipment		Emergency Vehicle OBE		signal priority status					
Connected Vehicle Roadside Equipment		Personal Information Device		intersection geometry					
Connected Vehicle Roadside Equipment		Transit Vehicle OBE		signal priority status					
Connected Vehicle Roadside Equipment		Vehicle OBE		intersection geometry					
Emergency Vehicle OBE		Connected Vehicle Roadside Equipment		local signal preemption request					
Transit Vehicle OBE		Connected Vehicle Roadside Equipment		local signal priority request					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry to a vehicle from a local source.				Urgent	Australia, European Union, United States, Japan
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Personal Information Device		intersection geometry					
Connected Vehicle Roadside Equipment		Vehicle OBE		intersection geometry					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: EU signal priority	Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Commercial Vehicle OBE		Connected Vehicle Roadside Equipment		local signal priority request					
Connected Vehicle Roadside Equipment		Commercial Vehicle OBE		signal priority status					
Connected Vehicle Roadside Equipment		Emergency Vehicle OBE		signal priority status					
Connected Vehicle Roadside Equipment		Transit Vehicle OBE		signal priority status					
Emergency Vehicle OBE		Connected Vehicle Roadside Equipment		local signal preemption request					
Transit Vehicle OBE		Connected Vehicle Roadside Equipment		local signal priority request					



Solution Name:		EU: Signal Control Messages - Local Broadcast Wireless (AU/EU)				Number of Issues:	6	Total Issue Severity:	16		
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability	
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.		Medium	V-L: EU signal priority	Develop an ITS application specification for a traffic signal to provide pre-emption or priority to authorised vehicles.				Urgent	Australia, European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution											
Source			Destination			Flow Name					
Emergency Vehicle OBE			Connected Vehicle Roadside Equipment			local signal preemption request					
Transit Vehicle OBE			Connected Vehicle Roadside Equipment			local signal priority request					

Solution Name:

EU: Signal Control Messages - Mobile Internet (X.509)

Number of Issues:

5

Total Issue Severity:

47

This solution is used within the European Union. It combines standards associated with EU: Signal Control Messages with those for I-M: Mobile Internet (X.509). The EU: Signal Control Messages standards include upper-layer standards required to implement signal control information flows. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Intneret connection method.

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	C-V: Signal operations	Develop an ITS application specification for providing intersection status information to vehicles from a centre for environmental benefits.	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Traffic Management Center		Vehicle OBE		intersection status		

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Use case not considered in design (critical)	While the indicated standards nominally address the information flow, the design details may not meet performance or other requirements because this particular use case was not the focus of the design effort.	High	C-V: Signal operations	Develop an ITS application specification for providing intersection status information to vehicles from a centre for environmental benefits.	Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source		Destination		Flow Name		
Traffic Management Center		Commercial Vehicle OBE		intersection status		
Traffic Management Center		Emergency Vehicle OBE		intersection status		
Traffic Management Center		Transit Vehicle OBE		intersection status		
Traffic Management Center		Vehicle OBE		intersection status		

Solution Name:		EU: Signal Control Messages - Mobile Internet (X.509)				Number of Issues:	5	Total Issue Severity:	47
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data not defined in standard format	The definition of data concepts should conform to ISO 14817-1 to promote reuse among ITS.	Low	V-L: Update SAE J2735 to conform to ISO 14817	Update the format of the standard to conform to the rules of ISO 14817-1 so that data can easily be placed in the CIDCR and understood by all ITS experts				Near-term	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Map Update System		Personal Information Device		intersection geometry					
Map Update System		Vehicle OBE		intersection geometry					
Traffic Management Center		Commercial Vehicle OBE		intersection status					
Traffic Management Center		Emergency Vehicle OBE		intersection status					
Traffic Management Center		Transit Vehicle OBE		intersection status					
Traffic Management Center		Vehicle OBE		intersection status					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: EU signal priority/preemption	Develop an ITS application specification for a centre to exchange requests and status for signal priority/preemption along a route with a vehicle.				Medium-term	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Traffic Management Center		Emergency Vehicle OBE		intersection status					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: Distribute maps	Develop an internationally acceptable ITS application specification that defines the rules for distributing maps, roadway geometry, and intersection geometry and associated regulations and restrictions over mobile Internet from a centre to user devices (e.g., a vehicle or personal information device).				Urgent	Australia, European Union, United States, Japan
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Map Update System		Personal Information Device		intersection geometry					
Map Update System		Vehicle OBE		intersection geometry					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: Signal operations	Develop an ITS application specification for providing intersection status information to vehicles from a centre for environmental benefits.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Traffic Management Center		Commercial Vehicle OBE		intersection status					
Traffic Management Center		Transit Vehicle OBE		intersection status					
Traffic Management Center		Vehicle OBE		intersection status					

Solution Name:		EU: Signal Control Messages - Mobile Internet (X.509)				Number of Issues:	5	Total Issue Severity:	47
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	C-V: Signal operations	Develop an ITS application specification for providing intersection status information to vehicles from a centre for environmental benefits.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Traffic Management Center		Transit Vehicle OBE		intersection status					

Solution Name:		EU: Signal Control Messages - Internet (X.509)				Number of Issues:	2	Total Issue Severity:	4																
This solution is used within the European Union. It combines standards associated with EU: Signal Control Messages with those for I-M: Internet (X.509). The EU: Signal Control Messages standards include upper-layer standards required to implement signal control information flows. The I-M: Internet (X.509) standards include lower-layer standards that support secure communications between two entities based on X.509 certificates.																									
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability																
Data not defined in standard format	The definition of data concepts should conform to ISO 14817-1 to promote reuse among ITS.		Low	V-L: Update SAE J2735 to conform to ISO 14817	Update the format of the standard to conform to the rules of ISO 14817-1 so that data can easily be placed in the CIDCR and understood by all ITS experts			Near-term	Australia, European Union, United States																
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td colspan="2">Source</td><td colspan="2">Destination</td><td colspan="4">Flow Name</td></tr><tr><td colspan="2">Connected Vehicle Roadside Equipment</td><td colspan="2">ITS Roadway Equipment</td><td colspan="4">intersection status monitoring</td></tr></table>										Source		Destination		Flow Name				Connected Vehicle Roadside Equipment		ITS Roadway Equipment		intersection status monitoring			
Source		Destination		Flow Name																					
Connected Vehicle Roadside Equipment		ITS Roadway Equipment		intersection status monitoring																					
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability																
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.		Medium	I-F: Signal conflict prevention	Develop an internationally acceptable ITS application specification for monitoring intersection status information to prevent conflicts between physical displays and broadcast information.			Urgent	Australia, European Union																
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td colspan="2">Source</td><td colspan="2">Destination</td><td colspan="4">Flow Name</td></tr><tr><td colspan="2">Connected Vehicle Roadside Equipment</td><td colspan="2">ITS Roadway Equipment</td><td colspan="4">intersection status monitoring</td></tr></table>										Source		Destination		Flow Name				Connected Vehicle Roadside Equipment		ITS Roadway Equipment		intersection status monitoring			
Source		Destination		Flow Name																					
Connected Vehicle Roadside Equipment		ITS Roadway Equipment		intersection status monitoring																					

Solution Name:		EU: SIRI - DATEX Messaging TCP				Number of Issues:		2		Total Issue Severity:		11	
This solution is used within the European Union. It combines standards associated with EU: SIRI with those for C-C: DATEX Messaging TCP. The EU: SIRI standards include upper-layer standards required to implement transit related real-time information. The C-C: DATEX Messaging TCP standards include lower-layer standards that support partially secure communications between two centres as commonly used in Europe.													
Issue	Issue Description			Issue Severity	Proposed Resolution	Resolution Description					Timeframe	Applicability	
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.			Medium	C-C: Secure communications	Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.  Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).					Urgent	Australia, European Union, United States	

<b>Solution Name:</b>	<b>EU: SIRI - DATEX Messaging TCP</b>	<b>Number of Issues:</b>	2	<b>Total Issue Severity:</b>	11
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	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination	Flow Name			
	Alternate Mode Transportation Center	Traffic Management Center	alternate mode service demand info			
	Transit Management Center	Transportation Information Center	transit schedule adherence information			
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data not defined (high)	Required data elements are not defined.	High	C-C: Update SIRI for other transport modes	Revise the SIRI application specification to support the exchange of ferry, airline, and inter-city rail information between centres.	Near-term	Australia, European Union
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination	Flow Name			
	Alternate Mode Transportation Center	Traffic Management Center	alternate mode service demand info			

<b>Solution Name:</b>	<b>EU: SIRI - Guaranteed Internet (X.509)</b>	<b>Number of Issues:</b>	1	<b>Total Issue Severity:</b>	8
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This solution is used within the European Union. It combines standards associated with EU: SIRI with those for I-I: Guaranteed Internet (X.509). The EU: SIRI standards include upper-layer standards required to implement transit related real-time information. The I-I: Guaranteed Internet (X.509) standards include lower-layer standards that support secure communications with guaranteed delivery between ITS equipment using mainstream Internet security standards (X.509).

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data not defined (high)	Required data elements are not defined.	High	C-C: Update SIRI for other transport modes	Revise the SIRI application specification to support the exchange of ferry, airline, and inter-city rail information between centres.	Near-term	Australia, European Union
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination	Flow Name			
	Alternate Mode Transportation Center	Traffic Management Center	alternate mode service demand info			

<b>Solution Name:</b>	<b>EU: SIRI - ODG-OCIT-C</b>	<b>Number of Issues:</b>	3	<b>Total Issue Severity:</b>	14
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This solution is used within the European Union. It combines standards associated with EU: SIRI with those for C-C: ODG-OCIT-C. The EU: SIRI standards include upper-layer standards required to implement transit related real-time information. The C-C: ODG-OCIT-C standards include lower-layer ODG proprietary protocol used within the EU for road traffic data exchange between central stations

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	<div>Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.</div> <div>Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).</div>	Urgent	Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination	Flow Name			
	Alternate Mode Transportation Center	Traffic Management Center	alternate mode service demand info			

Solution Name:		EU: SIRI - ODG-OCIT-C				Number of Issues:	3	Total Issue Severity:	14						
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability						
Data not defined (high)	Required data elements are not defined.	High	C-C: Update SIRI for other transport modes	Revise the SIRI application specification to support the exchange of ferry, airline, and inter-city rail information between centres.				Near-term	Australia, European Union						
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Alternate Mode Transportation Center</td><td>Traffic Management Center</td><td>alternate mode service demand info</td></tr></table>										Source	Destination	Flow Name	Alternate Mode Transportation Center	Traffic Management Center	alternate mode service demand info
Source	Destination	Flow Name													
Alternate Mode Transportation Center	Traffic Management Center	alternate mode service demand info													
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability						
Not an open standard	The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Medium	C-C: Secure communications	Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.  Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).				Urgent	Australia, European Union, United States						
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Alternate Mode Transportation Center</td><td>Traffic Management Center</td><td>alternate mode service demand info</td></tr></table>										Source	Destination	Flow Name	Alternate Mode Transportation Center	Traffic Management Center	alternate mode service demand info
Source	Destination	Flow Name													
Alternate Mode Transportation Center	Traffic Management Center	alternate mode service demand info													

Solution Name:	EU: TPEG2 - Internet (X.509)	Number of Issues:	1	Total Issue Severity:	3
This solution is used within the E.U., and Australia. It combines standards associated with EU: TPEG2 with those for I-I: Internet (X.509). The EU: TPEG2 standards include upper-layer standards required to support multi-modal information services.. The I-I: Internet (X.509) standards include lower-layer standards that support secure communications between two entities, based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Intnernet connection method.					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-V: Secure communications	Develop one or more internationally acceptable, secure, centre-vehicle communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).	Urgent	Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination		Flow Name		
	Traffic Management Center	Media		traffic information for media		
	Transportation Information Center	Media		traffic information for media		
	Transportation Information Center	Media		traveler information for media		
Transportation Information Center	Wide Area Information Disseminator		traveler information for media			

Solution Name:	EU: TPEG2 Parking Information - Local Broadcast Wireless (AU/EU)	Number of Issues:	3	Total Issue Severity:	9
This solution is used within the E.U., and Australia. It combines standards associated with EU: TPEG2 Parking Information with those for V-X: Local Broadcast Wireless (AU/EU). The EU: TPEG2 Parking Information standards include upper-layer standards required to implement parking information flows. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.					

Solution Name:		EU: TPEG2 Parking Information - Local Broadcast Wireless (AU/EU)				Number of Issues:	3	Total Issue Severity:	9
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Connected Vehicle Roadside Equipment		Vehicle OBE			parking availability				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Connected Vehicle Roadside Equipment		Vehicle OBE			parking availability				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTF/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTF/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Connected Vehicle Roadside Equipment		Vehicle OBE			parking availability				

Solution Name:		EU: UTMCI Data - UTMCI			Number of Issues:	2	Total Issue Severity:	35																																														
This solution is used within the European Union. It combines standards associated with EU: UTMCI Data with those for I-F: UTMCI. The EU: UTMCI Data standards include upper-layer standards required to implement center-to-field communications using the UTMCI Framework. The I-F: UTMCI standards include lower-layer standards that support secure centre-to-field and field-to-field communications using simple network management protocol (SNMPv2); while this standard offers some security capabilities, implementations are strongly encouraged to use SNMPv3 to ensure adequate security.																																																						
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability																																													
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.		Medium	I-F: Secure communications	Develop one or more internationally acceptable, secure, centre-to-field communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.			Urgent	Australia, European Union, United States																																													
	<table><tr><td colspan="9">Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</td></tr><tr><td colspan="2">Source</td><td colspan="3">Destination</td><td colspan="4">Flow Name</td></tr><tr><td colspan="2">ITS Roadway Equipment</td><td colspan="3">Connected Vehicle Roadside Equipment</td><td colspan="4">intersection control status</td></tr><tr><td colspan="2">ITS Roadway Equipment</td><td colspan="3">Maint and Constr Management Center</td><td colspan="4">roadway dynamic signage status</td></tr><tr><td colspan="2">ITS Roadway Equipment</td><td colspan="3">Maint and Constr Management Center</td><td colspan="4">speed monitoring information</td></tr></table>								Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									Source		Destination			Flow Name				ITS Roadway Equipment		Connected Vehicle Roadside Equipment			intersection control status				ITS Roadway Equipment		Maint and Constr Management Center			roadway dynamic signage status				ITS Roadway Equipment		Maint and Constr Management Center			speed monitoring information				
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution																																																						
Source		Destination			Flow Name																																																	
ITS Roadway Equipment		Connected Vehicle Roadside Equipment			intersection control status																																																	
ITS Roadway Equipment		Maint and Constr Management Center			roadway dynamic signage status																																																	
ITS Roadway Equipment		Maint and Constr Management Center			speed monitoring information																																																	

Solution Name:	EU: UTMCI Data - UTMCI	Number of Issues:	2	Total Issue Severity:	35
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ITS Roadway Equipment	Traffic Management Center	environmental sensor data
ITS Roadway Equipment	Traffic Management Center	right-of-way request notification
ITS Roadway Equipment	Traffic Management Center	roadway dynamic signage status
ITS Roadway Equipment	Traffic Management Center	roadway warning system status
ITS Roadway Equipment	Traffic Management Center	signal control status
ITS Roadway Equipment	Traffic Management Center	speed monitoring information
ITS Roadway Equipment	Traffic Management Center	traffic detector data
ITS Roadway Equipment	Traffic Management Center	traffic images
ITS Roadway Equipment	Traffic Management Center	variable speed limit status
Maint and Constr Management Center	ITS Roadway Equipment	roadway dynamic signage data
Maint and Constr Management Center	ITS Roadway Equipment	speed monitoring control
Traffic Management Center	ITS Roadway Equipment	environmental sensors control
Traffic Management Center	ITS Roadway Equipment	roadway dynamic signage data
Traffic Management Center	ITS Roadway Equipment	roadway warning system control
Traffic Management Center	ITS Roadway Equipment	signal control commands
Traffic Management Center	ITS Roadway Equipment	signal control device configuration
Traffic Management Center	ITS Roadway Equipment	signal control plans
Traffic Management Center	ITS Roadway Equipment	signal system configuration
Traffic Management Center	ITS Roadway Equipment	speed monitoring control
Traffic Management Center	ITS Roadway Equipment	traffic detector control
Traffic Management Center	ITS Roadway Equipment	variable speed limit control
Traffic Management Center	ITS Roadway Equipment	video surveillance control

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Message signs	Develop an internationally acceptable ITS application specification for managing message signs for secure communications with proper access control.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution			
Source	Destination	Flow Name	
ITS Roadway Equipment	Traffic Management Center	roadway warning system status	
Traffic Management Center	ITS Roadway Equipment	roadway warning system control	



Solution Name:		EU: UTM Data - UTM				Number of Issues:	2	Total Issue Severity:	35
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: EU signal operations	Develop an ITS application specification for exchanging configuration, plans, status, and commands for signal control and signal systems using the secure centre-to-field protocol.				Urgent	Australia, European Union
		Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution							
Source		Destination		Flow Name					
ITS Roadway Equipment		Traffic Management Center		right-of-way request notification					
ITS Roadway Equipment		Traffic Management Center		signal control status					
Traffic Management Center		ITS Roadway Equipment		signal control commands					
Traffic Management Center		ITS Roadway Equipment		signal control device configuration					
Traffic Management Center		ITS Roadway Equipment		signal control plans					
Traffic Management Center		ITS Roadway Equipment		signal system configuration					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	I-F: Speed warning	Develop an internationally acceptable ITS application specification for providing roadway configuration data, current speed limits , warning parameters and thresholds to a speed warning application.				Urgent	Australia, European Union, United States
		Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution							
Source		Destination		Flow Name					
ITS Roadway Equipment		Traffic Management Center		variable speed limit status					
Traffic Management Center		ITS Roadway Equipment		variable speed limit control					
Solution Name:		Location/Time reference - Positioning				Number of Issues:	1	Total Issue Severity:	3
This solution is used within the U.S., E.U., and Australia. It combines standards associated with Location/Time reference with those for Positioning. The Location/Time reference standards include upper-layer standards required to obtain location and time information from a satellite-positioning-system-based geolocation receiver. The Positioning standards include lower-layer standards that support communications between connected ITS equipment and geolocation equipment such as a GPS receiver.									
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	Secure and accurate location and time standards	Develop/adopt an internationally acceptable standard/solution for synchronising and continuously maintaining location and time information throughout the ITS environment in a secure and reliable manner with sufficient accuracy (including leap seconds) and confidence.				Urgent	Australia, European Union, United States
		Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution							
Source		Destination		Flow Name					
Field Location and Time Data Source		Connected Vehicle Roadside Equipment		location and time					
Personal Location and Time Data Source		Personal Information Device		location and time					
Vehicle Location and Time Data Source		Vehicle OBE		location and time					
Solution Name:		TMC - Wide Area Broadcast (Upper)				Number of Issues:	3	Total Issue Severity:	7
This solution is used within the U.S., E.U., and Australia. It combines standards associated with TMC with those for C-X: Wide Area Broadcast (Upper). The TMC standards include upper-layer standards required to support multi-modal information services to the vehicle.. The C-X: Wide Area Broadcast (Upper) standards include lower-layer standards that support one entity broadcasting information to all wireless devices over an area that covers at least a metropolitan area without any expectation of acknowledgement or response; security is provided by the upper-layers.									



<b>Solution Name:</b>	<b>TMC - Wide Area Broadcast (Upper)</b>	<b>Number of Issues:</b>	3	<b>Total Issue Severity:</b>	7
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-V: Secure communications	Develop one or more internationally acceptable, secure, centre-vehicle communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source	Destination		Flow Name			
Transportation Information Center	Personal Information Device		broadcast traveler information			
Transportation Information Center	Vehicle OBE		broadcast traveler information			
Wide Area Information Disseminator	Personal Information Device		wide area broadcast traveler information			
Wide Area Information Disseminator	Vehicle OBE		broadcast traveler information			
Wide Area Information Disseminator	Vehicle OBE		wide area broadcast traveler information			

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Ubiquitous broadcast technology	With the continual enhancement of broadcast technologies and a mixture of free and subscriber-based systems, it is difficult to identify any single technology that can be used to reliably reach the bulk of drivers in a timely manner.	Low	C-V: Wide-area broadcast subnet and hybrid communications	Standardise one or more mechanisms by which wide-area broadcast messages can be received by a defined minimum percentage of transportation users that are currently operating within a specified geographic area. The required minimum percentage is dependent on the type of information being transmitted and will need to be determined by the expert community. Some alerts (e.g., tornado warnings) will require near 100% reception, while other messages (e.g., road works ahead) may require significantly lower minimum percentages. The minimum percentage may be made up with a variety of technologies using hybrid communications and the ITS station architecture.	Urgent	Australia, European Union, United States

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source	Destination		Flow Name			
Transportation Information Center	Personal Information Device		broadcast traveler information			
Transportation Information Center	Vehicle OBE		broadcast traveler information			
Wide Area Information Disseminator	Personal Information Device		wide area broadcast traveler information			
Wide Area Information Disseminator	Vehicle OBE		broadcast traveler information			
Wide Area Information Disseminator	Vehicle OBE		wide area broadcast traveler information			

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.	Urgent	Australia, European Union

Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution						
Source	Destination		Flow Name			
Transportation Information Center	Vehicle OBE		broadcast traveler information			
Wide Area Information Disseminator	Vehicle OBE		broadcast traveler information			

<b>Solution Name:</b>	<b>TPEG2 - DATEX Messaging TCP</b>	<b>Number of Issues:</b>	2	<b>Total Issue Severity:</b>	11
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This solution is used within the European Union. It combines standards associated with TPEG2 with those for C-C: DATEX Messaging TCP. The TPEG2 standards include upper-layer standards required to support multi-modal information services.. The C-C: DATEX Messaging TCP standards include lower-layer standards that support partially secure communications between two centres as commonly used in Europe.

Solution Name:		TPEG2 - DATEX Messaging TCP				Number of Issues:	2	Total Issue Severity:	11
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability	
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.  Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).			Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Traffic Management Center		Media			traffic information for media				
Traffic Management Center		Wide Area Information Disseminator			traffic information for media				
Transportation Information Center		Media			traffic information for media				
Transportation Information Center		Wide Area Information Disseminator			traffic information for media				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability	
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-V: Secure communications	Develop one or more internationally acceptable, secure, centre-vehicle communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).			Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Traffic Management Center		Media			traffic information for media				
Traffic Management Center		Wide Area Information Disseminator			traffic information for media				
Transportation Information Center		Media			traffic information for media				
Transportation Information Center		Wide Area Information Disseminator			traffic information for media				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability	
Data/comm profile pairing	There are ambiguities as to how to (or if one should) couple the upper-layer standards defined in this solution with the indicated lower-layer standards.	High	C-C: WAID	Develop an internationally acceptable ITS application specification for providing information from a centre to a WAID for wide-area dissemination.			Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Traffic Management Center		Media			traffic information for media				
Traffic Management Center		Wide Area Information Disseminator			traffic information for media				
Transportation Information Center		Media			traffic information for media				
Transportation Information Center		Wide Area Information Disseminator			traffic information for media				

Solution Name:	TPEG2 - Guaranteed Internet (X.509)	Number of Issues:	2	Total Issue Severity:	6
This solution is used within the U.S., E.U., and Australia. It combines standards associated with TPEG2 with those for I-I: Guaranteed Internet (X.509). The TPEG2 standards include upper-layer standards required to support multi-modal information services. The I-I: Guaranteed Internet (X.509) standards include lower-layer standards that support secure communications with guaranteed delivery between ITS equipment using mainstream Internet security standards (X.509).					

Solution Name:		TPEG2 - Guaranteed Internet (X.509)				Number of Issues:	2	Total Issue Severity:	6
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability	
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-V: Secure communications	Develop one or more internationally acceptable, secure, centre-vehicle communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).			Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Traffic Management Center		Wide Area Information Disseminator			traffic information for media				
Transportation Information Center		Wide Area Information Disseminator			broadcast traveler information				
Transportation Information Center		Wide Area Information Disseminator			traffic information for media				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability	
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-C: WAID	Develop an internationally acceptable ITS application specification for providing information from a centre to a WAID for wide-area dissemination.			Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Transportation Information Center		Wide Area Information Disseminator			broadcast traveler information				

Solution Name:		TPEG2 - Local Broadcast Wireless (AU/EU)				Number of Issues:	6	Total Issue Severity:	23
This solution is used within the E.U., and Australia. It combines standards associated with TPEG2 with those for V-X: Local Broadcast Wireless (AU/EU). The TPEG2 standards include upper-layer standards required to support multi-modal information services.. The V-X: Local Broadcast Wireless (AU/EU) standards include lower-layer standards that support local-area broadcast wireless solutions, such as DSRC technologies, 5G LTE, etc.									
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.		Medium	V-L: Update GeoNetworking security	Update the GeoNetworking standard to provide secure data exchange where the transmitter of a message is not the same of the generator of the message (e.g., a message generated by a central system and sent to the RSE for transmission or a message generated by one vehicle and rebroadcast by another vehicle).			Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Connected Vehicle Roadside Equipment		Vehicle OBE			lane closure information				
Connected Vehicle Roadside Equipment		Vehicle OBE			road closure information				
Connected Vehicle Roadside Equipment		Vehicle OBE			road weather advisories				
Connected Vehicle Roadside Equipment		Vehicle OBE			vehicle signage data				
Connected Vehicle Roadside Equipment		Vehicle OBE			work zone information				
Emergency Vehicle OBE		Vehicle OBE			vehicle signage data				
Maint and Constr Vehicle OBE		Vehicle OBE			vehicle signage data				
Maint and Constr Vehicle OBE		Vehicle OBE			work zone information				

Solution Name:		TPEG2 - Local Broadcast Wireless (AU/EU)				Number of Issues:	6	Total Issue Severity:	23
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability	
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-V: Secure communications	Develop one or more internationally acceptable, secure, centre-vehicle communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).			Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		lane closure information					
Connected Vehicle Roadside Equipment		Vehicle OBE		road closure information					
Connected Vehicle Roadside Equipment		Vehicle OBE		road weather advisories					
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle signage data					
Connected Vehicle Roadside Equipment		Vehicle OBE		work zone information					
Emergency Vehicle OBE		Vehicle OBE		vehicle signage data					
Maint and Constr Vehicle OBE		Vehicle OBE		vehicle signage data					
Maint and Constr Vehicle OBE		Vehicle OBE		work zone information					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability	
Uncertainty about trust revocation mechanism	The mechanisms used to prevent bad actors from sending authorized messages is unproven.	Medium	Misbehavior detection and security revocation mechanism	Conduct a field test to prove out the trust revocation mechanisms at all levels, including revoking the privileges of a certificate authority (e.g., if an authority is no longer recognized within a region) and of an ITS station (e.g., in case an ITS station starts to misbehave).			Urgent	Australia, European Union, United States	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		lane closure information					
Connected Vehicle Roadside Equipment		Vehicle OBE		road closure information					
Connected Vehicle Roadside Equipment		Vehicle OBE		road weather advisories					
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle signage data					
Connected Vehicle Roadside Equipment		Vehicle OBE		work zone information					
Emergency Vehicle OBE		Vehicle OBE		vehicle signage data					
Maint and Constr Vehicle OBE		Vehicle OBE		vehicle signage data					
Maint and Constr Vehicle OBE		Vehicle OBE		work zone information					

Solution Name:		TPEG2 - Local Broadcast Wireless (AU/EU)				Number of Issues:	6	Total Issue Severity:	23
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability	
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).			Urgent	Australia, European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		lane closure information					
Connected Vehicle Roadside Equipment		Vehicle OBE		road closure information					
Connected Vehicle Roadside Equipment		Vehicle OBE		work zone information					
Emergency Vehicle OBE		Vehicle OBE		vehicle signage data					
Maint and Constr Vehicle OBE		Vehicle OBE		vehicle signage data					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability	
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: EU vehicle signage data	Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC.			Urgent	Australia, European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle signage data					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability	
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-L: BTP/GeoNetworking/G5 and FNTF/M5	Standardise on a single solution for providing DSRC communications within Europe and Australia; currently BTP/GeoNetworking/G5 and FNTF/M5 are competing solutions that are not interoperable at the Subnet or Transnet layers.			Urgent	Australia, European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Connected Vehicle Roadside Equipment		Vehicle OBE		lane closure information					
Connected Vehicle Roadside Equipment		Vehicle OBE		road closure information					
Connected Vehicle Roadside Equipment		Vehicle OBE		road weather advisories					
Connected Vehicle Roadside Equipment		Vehicle OBE		vehicle signage data					
Connected Vehicle Roadside Equipment		Vehicle OBE		work zone information					
Emergency Vehicle OBE		Vehicle OBE		vehicle signage data					
Maint and Constr Vehicle OBE		Vehicle OBE		vehicle signage data					
Maint and Constr Vehicle OBE		Vehicle OBE		work zone information					

Solution Name:		TPEG2 - Local Broadcast Wireless (AU/EU)				Number of Issues:	6	Total Issue Severity:	23																										
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability																											
Data/comm profile pairing	There are ambiguities as to how to (or if one should) couple the upper-layer standards defined in this solution with the indicated lower-layer standards.	High	V-L: TPEG2	Develop an ITS application specification for transmission of TPEG2 to a vehicle from a local broadcast source.			Near-term	Australia, European Union																											
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Maint and Constr Vehicle OBE	Vehicle OBE	work zone information																																	
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability																											
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	V-L: US traveler information	Develop an ITS application specification for providing in-vehicle signage and other traveler information to the vehicle from the roadside. This will also need to address issues such as when and how to locally generate traveler information messages and how to sign these messages.			Urgent	United States																											
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Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description			Timeframe	Applicability																											
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: EU vehicle signage data	Develop an ITS application specification for providing vehicle signage data to vehicles over DSRC.			Urgent	Australia, European Union																											
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Solution Name:		TPEG2 - Local Broadcast Wireless (AU/EU)			Number of Issues:	6	Total Issue Severity:	23
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability	
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	V-L: TPEG2	Develop an ITS application specification for transmission of TPEG2 to a vehicle from a local broadcast source.		Near-term	Australia, European Union	
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution								
Source		Destination		Flow Name				
Connected Vehicle Roadside Equipment		Vehicle OBE		road closure information				

Solution Name:		TPEG2 - Mobile Internet (X.509)			Number of Issues:	5	Total Issue Severity:	44																														
This solution is used within the U.S., E.U., and Australia. It combines standards associated with TPEG2 with those for I-M: Mobile Internet (X.509). The TPEG2 standards include upper-layer standards required to support multi-modal information services.. The I-M: Mobile Internet (X.509) standards include lower-layer standards that support secure communications between two entities, either or both of which may be actively moving; based on X.509 certificates. A non-mobile (if any) endpoint may connect to the wide-area-wireless service provider using any Intneret connection method.																																						
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability																															
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-V: Secure communications	Develop one or more internationally acceptable, secure, centre-vehicle communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).		Urgent	Australia, European Union, United States																															
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Source	Destination	Flow Name																																				
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Data Distribution System	Vehicle OBE	traveler information																																				
Emergency Management Center	Emergency Vehicle OBE	suggested route																																				
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Transportation Information Center	Vehicle OBE	road weather advisories																																				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description		Timeframe	Applicability																															
Data profile not defined	Performance, functionality, and the upper-layers of the OSI stack have not been defined for this information flow.	Ultra	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).		Urgent	Australia, European Union																															
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Solution Name:		TPEG2 - Mobile Internet (X.509)				Number of Issues:	5	Total Issue Severity:	44						
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability						
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.				Urgent	Australia, European Union						
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Traffic Management Center	Vehicle OBE	vehicle signage data													
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability						
Overlap of standards	Multiple standards have been developed to address this information and it is unclear which standard should be used to address this specific information flow.	Medium	V-X: DENM, IVI, TPEG2, TMC and Contextual Speed Information	Standardise on a single solution for providing traveler information, lane closure information and speed information; currently this information can be sent via DENM, IVI, TPEG2, TMC, or Contextual Speed Information (speed information only). Use cases need to consider the various environments (e.g., Centre-Vehicle, Roadside-Vehicle, Special Vehicle-Vehicle, etc).				Urgent	Australia, European Union						
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Traffic Management Center	Vehicle OBE	lane closure information													
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability						
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.				Urgent	Australia, European Union						
<div>Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution</div> <table><tr><td>Source</td><td>Destination</td><td>Flow Name</td></tr><tr><td>Traffic Management Center</td><td>Vehicle OBE</td><td>lane closure information</td></tr></table>										Source	Destination	Flow Name	Traffic Management Center	Vehicle OBE	lane closure information
Source	Destination	Flow Name													
Traffic Management Center	Vehicle OBE	lane closure information													
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability						
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.	Medium	C-V: Weather information	Update the international ITS application specification to address road weather advisories.				Urgent	Australia, European Union, United States						
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Transportation Information Center	Vehicle OBE	road weather advisories													



Solution Name:		TPEG2 - Mobile Internet (X.509)				Number of Issues:	5	Total Issue Severity:	44	
Issue	Issue Description		Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Use case not considered in design (medium)	While the indicated standards nominally address the information flow, the design may not meet practical constraints because this particular use case was not the focus of the design effort.		Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution										
Source			Destination			Flow Name				
Traffic Management Center			Vehicle OBE			vehicle signage data				

Solution Name:		TPEG2 - ODG-OCIT-C				Number of Issues:	2	Total Issue Severity:	6
This solution is used within the European Union. It combines standards associated with TPEG2 with those for C-C: ODG-OCIT-C. The TPEG2 standards include upper-layer standards required to support multi-modal information services.. The C-C: ODG-OCIT-C standards include lower-layer ODG proprietary protocol used within the EU for road traffic data exchange between central stations									
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-C: Secure communications	Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.  Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Traffic Management Center		Media		traffic information for media					
Traffic Management Center		Wide Area Information Disseminator		traffic information for media					
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-V: Secure communications	Develop one or more internationally acceptable, secure, centre-vehicle communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination		Flow Name					
Traffic Management Center		Media		traffic information for media					
Traffic Management Center		Wide Area Information Disseminator		traffic information for media					

Solution Name:		TPEG2 - ODG-OCIT-C				Number of Issues:	2	Total Issue Severity:	6
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Not an open standard	The document may be publicly available but it is not a formal standard developed according to open standards development rules and details may change prior to adoption as open standard.	Medium	C-C: Secure communications	Develop one or more internationally acceptable, secure, centre-to-centre communication standards and define rules on when to use which one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed.  Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Traffic Management Center		Media			traffic information for media				
Traffic Management Center		Wide Area Information Disseminator			traffic information for media				

Solution Name:	TPEG2 - Wide Area Broadcast (Upper)	Number of Issues:	3	Total Issue Severity:	7
This solution is used within the U.S., E.U., and Australia. It combines standards associated with TPEG2 with those for C-X: Wide Area Broadcast (Upper). The TPEG2 standards include upper-layer standards required to support multi-modal information services.. The C-X: Wide Area Broadcast (Upper) standards include lower-layer standards that support one entity broadcasting information to all wireless devices over an area that covers at least a metropolitan area without any expectation of acknowledgement or response; security is provided by the upper-layers.					

Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description	Timeframe	Applicability
Security inadequate	The solution does not provide adequate communications security for the information triple, which potentially jeopardizes C-ITS operations.	Medium	C-V: Secure communications	Develop one or more internationally acceptable, secure, centre-vehicle communication standards and define rules on when to use each one. The standard(s) should include support for authentication, authorization, confidentiality, and non-repudiation, as needed. Once the application layer standard(s) are developed, most ITS Information Layer standards will need to be updated to document data in appropriate format(s).	Urgent	Australia, European Union, United States
	Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution					
	Source	Destination		Flow Name		
	Transportation Information Center	Personal Information Device		broadcast traveler information		
	Transportation Information Center	Vehicle OBE		broadcast traveler information		
	Wide Area Information Disseminator	Personal Information Device		wide area broadcast traveler information		
	Wide Area Information Disseminator	Vehicle OBE		broadcast traveler information		
	Wide Area Information Disseminator	Vehicle OBE		wide area broadcast traveler information		

Solution Name:		TPEG2 - Wide Area Broadcast (Upper)				Number of Issues:	3	Total Issue Severity:	7
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Ubiquitous broadcast technology	With the continual enhancement of broadcast technologies and a mixture of free and subscriber-based systems, it is difficult to identify any single technology that can be used to reliably reach the bulk of drivers in a timely manner.	Low	C-V: Wide-area broadcast subnet and hybrid communications	Standardise one or more mechanisms by which wide-area broadcast messages can be received by a defined minimum percentage of transportation users that are currently operating within a specified geographic area. The required minimum percentage is dependent on the type of information being transmitted and will need to be determined by the expert community. Some alerts (e.g., tornado warnings) will require near 100% reception, while other messages (e.g., road works ahead) may require significantly lower minimum percentages. The minimum percentage may be made up with a variety of technologies using hybrid communications and the ITS station architecture.				Urgent	Australia, European Union, United States
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Transportation Information Center		Personal Information Device			broadcast traveler information				
Transportation Information Center		Vehicle OBE			broadcast traveler information				
Wide Area Information Disseminator		Personal Information Device			wide area broadcast traveler information				
Wide Area Information Disseminator		Vehicle OBE			broadcast traveler information				
Wide Area Information Disseminator		Vehicle OBE			wide area broadcast traveler information				
Issue	Issue Description	Issue Severity	Proposed Resolution	Resolution Description				Timeframe	Applicability
Performance not fully defined (medium)	The performance rules are not fully defined for this information flow.	Medium	C-V: In-vehicle signage	Develop an ITS application specification for in-vehicle signage to the vehicle from a centre.				Urgent	Australia, European Union
Information Triples using this solution and affected by this Issue that would be addressed by the Proposed Resolution									
Source		Destination			Flow Name				
Transportation Information Center		Vehicle OBE			broadcast traveler information				
Wide Area Information Disseminator		Vehicle OBE			broadcast traveler information				