Reading Instructions
Data Sender

2017

Table of Contents

List of Figures

List of Tables

Executive Summary

This document outlines reading instructions for the TN-ITS documentation from a data sender's perspective. Only finalized project results and implementations are referenced in this document. Ongoing projects and initiatives might also be of value in order to understand the data transfer from a data sender to data receiver within the TN-ITS framework. However, these are not referenced in this document.

A corresponding document from the data receiver's perspective is also published on the TN-ITS web site.

Purpose

The main purpose of this document is to:

- Give an overview of the steps necessary to implement a TN-ITS compliant data exchange;
- Provide reading instructions from the TN-ITS documentation detailing the data sender's perspective.

Generic Process Flow

This is a generic process flow that can be used to understand, at a high level, the steps required to achieve a TN-ITS compliant data exchange.
The role of the Data sender is normally held by an enacting authority (i.e. the entity responsible for supervising the establishment of laws and regulations for transport and traffic).
The role of the Data receiver can be held by any party using road data in applications (e.g. providing maps and data sets for use in ADAS and ITS applications).

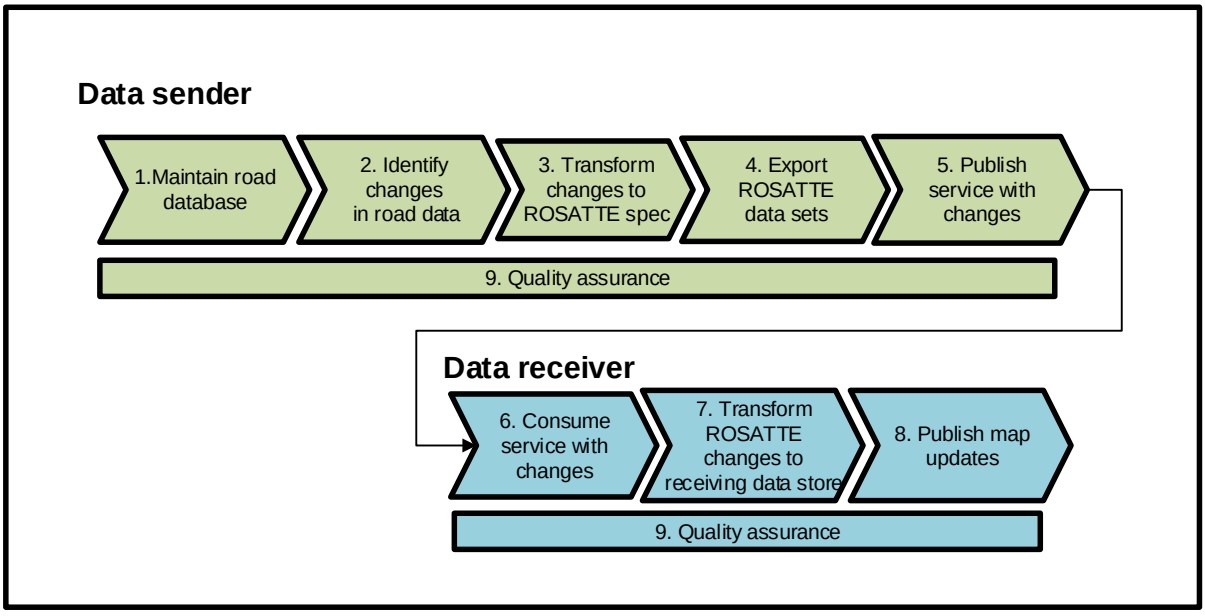

Figure 1: Generic Process Flow

This document sets out the reading instructions that cover the data sender's requirements for the TN-ITS service and is structured according to the Generic Process Flow figure above. A corresponding document covering the data receiver's part is published on the TN-ITS web site.

Reading Instructions

Introduction

Each of the tables below references information, from the TN-ITS framework and elsewhere, which is important in successfully delivering each process step.

The referenced documents from the ROSATTE project are the main documents specifying TN-ITS data exchange requirements for both data senders and data readers. Despite the fact that some development occurred after finalization of the ROSATTE project, the official deliverables from the project have not changed. Some of the references in the tables in this document originate from activities that occurred after the ROSATTE project where the specifications have been developed further, but not officially published. Below is a brief enumeration of important events that occurred in the context of ROSATTE/TN-ITS together with links to useful documents:

1. EU-funded MAPS&ADAS (2004/2007) and SpeedAlert (2004/2005)
   recognised the need for a data chain from road authorities to ITS map providers, to improve updating of ITS digital maps
2. INSPIRE Directive (15-05-2007)
   Infrastructure for Spatial Information in the European Community Transport Networks (TN) specification
3. ITS Action Plan (16-12-2008) priority action 1.3
   procedures for ensuring the availability of accurate public data for digital maps and their timely updating through cooperation between the relevant public bodies and digital map providers recognised the need for a data chain from road authorities to ITS map providers, to improve updating of ITS digital maps
4. EU-funded ROSATTE project (2008/2010)
   elaborated and tested concept of the data chain, and created a data exchange specification (deliverable D3.1)
5. ITS Directive (7-07-2010), specification B
   availability, accessibility and timely updating of road data by the relevant public authorities and stakeholders (as part of RTTI)
6. EU-funded eMaPS support action & e-Safety Forum DMWG (2011/13)
   a) further analysis, and preparation of TN-ITS (established 05-06-2013)
   b) developed vision of closer alignment with INSPIRE described in the deliverables D2.41 – Alignment of ROSATTE with INSPIRE from a technical point of view and D2.44 – Organizational and legal issues to align ROSATTE with the INSPIRE Directive.
   c) inclusion of directions for OpenLR implementation for location referencing within the ROSATTE D3.1 specification based on implementation work done jointly by Trafikverket and TomTom (described in the eMaps report "D2.42 - Georeferencing methods"). This has not yet been published in any official specifications besides the eMaps report.
7. Submission of proposal for CEN/TC278 Project Team (1st version, 23-08-2013)
8. Revival of dormant CEN/TC 278/WG 7 "Geographic Data Files" with new name "ITS spatial data" (September 2013)
9. Transportation Pilot with support of the JRC (2014/2015)
   a) implementation of the TN-ITS exchange framework in Norway and Sweden

b) inclusion of a linear referencing method (besides AGORA-C and OpenLR) according to INSPIRE DS TN. This has not yet been published in any official specifications besides the Transportation Pilot report.

10. Activation of proposed work item (September 2014)
11. Commission Delegated Regulation (18-12-2014, published 22-06-2015)
    focus on RTTI services, but includes elaborate rules for the provision of updates of static road data ("road data that do not often change")
12. Resubmission of CEN/TC278 PT proposal (2nd version, August 2015)
13. CEF-funded project (part of EU EIP) for implementation in five more Member States (2016/2017)
    FI / BE (FL) / UK / IE / FR

Overall Framework, Requirements and General Comments on the Documentation

The table below lists important reading, providing an overview of the TN-ITS framework, primarily from a functional and organizational perspective.

Motivation and purpose	Document reference	Comment
To understand the overall TN-ITS framework and the requirements governing the exchange of safety related data in Europe	ROSATTE Deliverable D1.2 – Requirements and Overall architecture	The document uses the role Enacting Authority for the entity responsible for the establishment of laws and regulations for transport and traffic. The role Data Store Operator is responsible for initiating and operating the data store. Both of these roles operate within the data sender role according to the generic process flow and are therefore especially worth mentioning.
A more technical overview of data exchange according to the TN-ITS framework	ROSATTE Deliverable D3.1 – Specification of data exchange methods – Chapter 1.2. ROSATTE data exchange.	This chapter gives a more detailed view of the different components needed and the tasks that need to be performed by a data sender, e.g. mapping conceptual models.
To understand the basic architecture of INSPIRE	INSPIRE Network Services Architecture	The ROSATTE deliverables frequently reference the INSPIRE guidelines. The Network Services Architecture includes the service types as mandated by the INSPIRE directive which an enacting authority in many cases needs to consider due to European law. For TN-ITS, the principles for discovery and view services from INSPIRE may be re-used as is, while the data specification and download service was specified uniquely because of specific requirements.
Understanding preferred location referencing	Location referencing fact sheet	Initially, in the ROSATTE project, AGORA-C (ISO 17572-3) was selected as the preferred way for representing location references for the exchanged data. However, over time, OpenLR (http://www.openlr.org) emerged as the preferred method for this kind of location referencing for TN-ITS. For TN-ITS xml schemas, this means that support for OpenLR has been added. For learning how to encode or decode OpenLR location references or finding existing software which does the job we refer to the OpenLR homepage reference above. During the Transportation Pilot project, a need to facilitate cross-

		referencing between TN-ITS data and INSPIRE data was identified. Therefore an option to provide linear references according to INSPIRE in addition to the OpenLR location reference was introduced in the xml schemas. This is not mandatory for TN-ITS. All of the above happened after the original writing of the specifications from the ROSATTE project and the specifications may therefore be incomplete in this sense.

Table 1: Overall Framework, Requirements and General Comments on the Documentation

Maintain Road Database

The first step in the process involves establishing and maintaining a road database which contains information of interest in a TN-ITS context. The table below lists reading which is important for this requirement.

Motivation and purpose	Document reference	Comment
To understand the basic data process needed for provision of TN-ITS data, including the responsibilities of the data sender	ROSATTE Deliverable D2.1 – Conceptual specification of how to establish a data store – Chapters 3-4. Functional/Process viewpoint	Chapters 3 & 4 describe a number of roles, responsibilities and use cases for establishing and maintaining a data store. All these need to be considered when establishing a new data store or mapped to an existing data store and organization.
To understand how to meet the basic information requirements of a TN-ITS data store	ROSATTE Deliverable D2.1 – Conceptual specification of how to establish a data store – Chapter 5. Information viewpoint	Chapter 5 describes the basic information requirements regarding the top-level elements in a TN-ITS data store: - Road network - Location referencing - Safety attributes - Updates - Metadata
To understand detailed information requirements of a TN-ITS data store	ROSATTE Deliverable D3.1 – Specification of data exchange methods – Chapter 6. Data Content Specification	Even though a TN-ITS data store is not required internally to exactly mimic the TN-ITS data content specification, it is important in helping to map the concepts for a data store at an enacting authority to the concepts defined by TN-ITS. Therefore, the conceptual model of TN-ITS needs to be viewed as a requirement when establishing the TN-ITS data store.
Additional information requirements	INSPIRE D2.8.1.7 – INSPIRE Data	Often, an enacting authority is required to publish road data

– road network	Specification on transport Networks – Guidelines, Chapter 5.3. Application Schema Road transport Networks	according to the INSPIRE data specification for transport networks (sub-theme road networks). The ability to do this is a firm indicator that it will also be possible to publish data according to TN-ITS.
Additional information requirements – location referencing	ISO 17572-3 – Intelligent Transport Systems (ITS) – Location referencing for geographic databases – Part 3: location references (dynamic profile) OpenLR (tm) – White Paper	The preferred methods for location referencing are AGORA-C (ISO 17572-3) and OpenLR (http://www.openlr.org). These methods pose specific requirements on the structure and content of a TN-ITS data store. The important parts for a data sender involve the encoding of location references.
To understand how quality can be measured	ROSATTE Deliverable D5.1 – Test and validation plan	Understanding the application-dependent data quality requirements and how to measure against those requirements is essential for a data sender.
To learn from existing implementations of the TN-ITS framework	ROSATTE D2.2 – Implementations of tools for demonstration of data maintenance and access in different test beds. Transportation Pilot report	The ROSATTE D2.2 report contains a description of the pilot implementations within the ROSATTE project, some of which have moved on to production versions. Transportation Pilot implementation in Norway and Sweden
Further reading	JRC Technical Reports – Improving accuracy in road safety data exchange for navigation systems	This report contains information of the implementations in Sweden and Norway during the project "Transportation Pilot" within the European Union Location Framework project. Chapter 2.3 may be of special interest.

Table 2: Maintain Road Database

Identify Changes in Road Data

When TN-ITS data is exchanged, the preferred method is exchanging incremental updates, i.e. the actual changes that occur in the dataset, rather than exchanging complete datasets. This ensures that the datasets remain small, thus increasing the efficiency of the data exchange chain.

Motivation and purpose	Document reference	Comment
To understand the concepts behind incremental data exchange according to the TN-ITS framework.	ROSATTE Deliverable D3.1 – Specification of data exchange methods – Chapter 6. Data Content Specification (especially chapter 6.5 Package updates)	This document specifies the content and structure of the exchanged data
To understand how incremental data	ROSATTE Deliverable D3.2 – Software	This document describes how the pilots for the various test sites in

exchange is implemented.	modules for data exchange – Chapter 4. Test site specific software	the ROSATTE project were implemented. Essentially three methods were used: 1. Publishing changes at the time data was updated 2. Logging updates in the road database and publishing these changes according to some defined interval 3. Comparing two successive snapshots of the road database and publishing changes within a given interval

Table 3: Identify Changes in Road Data

Transform Changes to ROSATTE Specification

If all necessary data exists in a data store, that data can be transformed and exported. The transformation and export steps may be viewed as one or two steps depending on practical implementation considerations.

Motivation and purpose	Document reference	Comment
To understand the concepts in the TN-ITS model for the purpose of mapping from the data store – Safety Features	ROSATTE Deliverable D3.1 – Specification of data exchange methods – Chapter 6. Data Content Specification	This document specifies the content and structure of the exchanged data. The structure of the available data in the database of the data sender has to be mapped to the structure of TN-ITS. No reference can be given to an exact methodology on how this can be done and how it can be documented and implemented. Methods for documentation and implementation can range from manual writing of documents and code to semi-automated procedures perhaps using xslt or similar techniques.
To understand the concepts in the TN-ITS model for the purpose of mapping from the data store – Location referencing	http://www.openlr.org/data/docs/OpenLR-Whitepaper_v1.5.pdf Chapter 4 and 5	OpenLR is the preferred way for location referencing within TN-ITS. Chapter 4 describes the information requirements for being able to generate an OpenLR location reference. Chapter 5 describes a logical data format.
Implementation tips	D3.2 – Software modules for data exchange – Chapter 4. Test site specific software	This document describes how the pilots for the various test sites in the ROSATTE project were implemented.

Table 4: Transform Changes to ROSATTE Specification

Export ROSATTE Data Sets

When all necessary data exists in a data store and data transformations have been implemented or specified, they can be exported in the required format. The transformation and export steps may be viewed as one or two steps depending on practical implementation considerations.

Motivation and purpose	Document reference	Comment
To understand how to encode the safety feature data according to TN-ITS	ROSATTE Deliverable D3.1 – Specification of data exchange methods – Chapter 7. Physical Exchange Format – Structure and Coding	This document specifies the schemas for data encoding. The schemas are based on and extend from ISO 19136 – GML. No specific references towards implementation methods can be provided here and may vary depending on the development environment, e.g. Java/.NET.
To understand how to encode the location references according to TN-ITS	http://www.openlr.org/data/docs/OpenLR-Whitepaper_v1.5.pdf Chapters 7, 8 and 9 D2.42 – Georeferencing methods Transportation Pilot report	OpenLR is the preferred way for location referencing within TN-ITS. Chapters 7 and 8 describe the binary encoding and chapter 9 describes the xml encoding for OpenLR, both of which may be used in TN-ITS (binary format encoded using base64 since TN-ITS uses xml text encoding) The eMaps document D2.42 – Georeferencing methods has a section which describes the addition of an OpenLRLocationType to the xml schema *LocationReferencing.xsd". Currently though, the only implementation actually uses the OpenLRLocationStringType which is added in the exact same way. OpenLRLocationStringType is used for encoding base64 coded binary data while OpenLRLocationType should be used for XML encoding. The Transportation Pilot report, chapter 5, explains the addition of an optional linear referencing method according to INSPIRE DS TN including reasons why.
Implementation tips	ROSATTE Deliverable D3.2 – Software modules for data exchange – Chapter 4. Test site specific software	This document describes how the pilots for the various test sites in the ROSATTE project were implemented.
XML schemas		Unfortunately, no official place exists for the XML schemas

		outside the documents. For convenience, the last version of XML schemas, those used in the Transportation Pilot project has been included in this document in Appendix 2 – Most recent XML schemas for TN-ITS

Table 5: Export ROSATTE Data Sets

Publish Service with Changes

When all necessary data has been transformed and exported, it should be published according to the web service interface, thus making it accessible to the data receiver.

Motivation and purpose	Document reference	Comment
To understand how to publish the exported data making it available to the data receivers	ROSATTE Deliverable D3.1 – Specification of data exchange methods – Chapter 8. Service specification This document - Appendix 1 – REST interface for TN-ITS data	Chapter 8 in the Specification of exchange methods describes a specification for the service interfaces. In this document, we added Appendix 1 – REST interface for ROSATTE data, which explains the details of a TN-ITS publishing service (download service in INSPIRE terms). We also added a wadl file (web application description language) that defines the interfaces for the RESTFul web service in chapter 5.9.
To understand how to digest feedback from data receivers	ROSATTE Deliverable D3.1 – Specification of data exchange methods – Chapter 8. Service specification **Error! Reference source not found.**	Feedback
Implementation tips	ROSATTE Deliverable D3.2 – Software modules for data exchange – Chapter 4. Test site specific software	This document describes how the pilots for the various test sites in the ROSATTE project were implemented.

Table 6: Publish Service with Changes

Quality Assurance

Procedures should exist for the entire process to assure the necessary data quality for given applications.

Motivation and purpose	Document reference	Comment
To understand the TN-ITS Quality Management approach	ROSATTE Deliverable D5.2 – Report on data quality management concept	To have a data chain which offers end user value, all links in the chain must maintain data quality. This report concerns the whole data chain of which the **data sender** is one part.
Required and optional quality parameters	ROSATTE Deliverable D3.1 – Specification of data exchange methods – Chapter 6.6 Package Metadata	

Table 7: Quality Assurance

Appendix 1 – REST Interface for TN-ITS Data

Basic Principles for the Interface

The output from a TN-ITS service consists of a chronologically ordered list of datasets, each dataset consisting of updates that occurred since the previous dataset. Each dataset has a globally unique id generated according to a scheme described in ROSATTE D3.1, chapter 8.1.7.
The client shall set up a corresponding feedback service. This is not further elaborated on in this document.

Responsibilities for the Data Sender (TN-ITS Service)

The data sender responsible for the service shall make sure that, at some interval, update datasets are generated chronologically. Each dataset shall have an id according to ROSATTE D3.2, 8.1.7. It is also the responsibility of the service that no update will be missed or duplicated. All datasets concatenated shall describe the sequence of updates as they occur in the source data. The interval for generating update datasets is not pre-defined and here are some examples that could be used:

- Continuously. An update dataset is generated each time a transaction was committed in the source data
- Daily (this is currently used by STA and the NPRA service as set up by Triona)
- Weekly
- Monthly

However, it is possible to use other intervals and even irregular intervals are allowed, e.g. every working day, but not weekends.
The update datasets shall be encoded according to ROSATTE D3.1 and the ROSATTE.xsd (listed in the document) and, at the moment, also available online here.

Responsibilities for Client of the Service

It is the responsibility of the client to "remember" the id of the dataset that was the last to be successfully integrated in the target database. In order to get the correct subsequent update, this id is used in the next request to the service.
Each safety feature in an update dataset is uniquely identified (according to the same scheme as INSPIRE). This should be used by the client in order to make updates to the target data in the most reliable way. The client may however use a method of their own choice.
It is the client's responsibility to generate and publish a feedback dataset according to ROSATTE D3.1 for each of the digested update datasets. There is no further elaboration of the feedback process in this document.

Description of the Interface for Update Dataset Downloads

<<BASEURL>>/DOWNLOAD/QUERYDATASETS (HTTP GET)

Returns a chronologically ordered list of all available update datasets according to the schema ROSATTE-rest.xsd
The list contains one <rst:ROSATTERestDatasetRefList> with a <rst:ROSATTERestDatasetRef>-element for each dataset. Each element contains an xlink with the URL for the corresponding update dataset.

Example Request

https://app.trafikverket.se/RosatteDownload/download/querydatasets

Example Response

<rst:ROSATTERestDatasetRefList xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:rst="http://www.ertico.com/en/subprojects/rosatte/rst" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<rst:ROSATTERestDatasetRef xlink:href="https://app.trafikverket.se/rosattedownload/download/readDataSet?dataSetID=1uShiYqi%2fEe120s9P1ga7AAAABRPiNRBAAAAR%2b6I1EE%3d"/>
<rst:ROSATTERestDatasetRef xlink:href="https://app.trafikverket.se/rosattedownload/download/readDataSet?dataSetID=1uShiYqi%2fEe120s9P1ga7AAAAEfuiNRBAAAAEEOJ1EE%3d"/>
<rst:ROSATTERestDatasetRef xlink:href="https://app.trafikverket.se/rosattedownload/download/readDataSet?dataSetID=1uShiYqi%2fEe120s9P1ga7AAAABBDidRBAAAAYZeJ1EE%3d"/>
</rst:ROSATTERestDatasetRefList>

<<BASEURL>>/DOWNLOAD/QUERYDATASETS?LASTVALIDDATASETID=[DATASETID] (HTTP GET)

Returns a chronologically ordered list of all available update datasets, which was created after the dataset with the given datasetId, according to the schema ROSATTE-rest.xsd. The structure of the response is the same as with the call without the lastValidDatasetId parameter.

Example Request

https://app.trafikverket.se/RosatteDownload/download/querydatasets?lastValidDatasetId=1uShiYqi%2fEe120s9P1ga7AAAADTWDdVBAAAAuH0P1UE%3d

Example Response

<rst:ROSATTERestDatasetRefList xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:rst="http://www.ertico.com/en/subprojects/rosatte/rst" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<rst:ROSATTERestDatasetRef xlink:href="https://app.trafikverket.se/rosattedownload/download/readDataSet?dataSetID=1uShiYqi%2fEe120s9P1ga7AAAALh9D9VBAAAA2dIR1UE%3d"/>
<rst:ROSATTERestDatasetRef xlink:href="https://app.trafikverket.se/rosattedownload/download/readDataSet?dataSetID=1uShiYqi%2fEe120s9P1ga7AAAANnSEdVBAAAAJs8T1UE%3d"/>
<rst:ROSATTERestDatasetRef xlink:href="https://app.trafikverket.se/rosattedownload/download/readDataSet?dataSetID=1uShiYqi%2fEe120s9P1ga7AAAACbPE9VBAAAAIxsW1UE%3d"/>
<rst:ROSATTERestDatasetRef xlink:href="https://app.trafikverket.se/rosattedownload/download/readDataSet?dataSetID=1uShiYqi%2fEe120s9P1ga7AAAACMbFtVBAAAA4WkY1UE%3d"/>
</rst:ROSATTERestDatasetRefList>

<<BASEURL>>/DOWNLOAD/READDATASET?DATASETID=[DATASETID] (HTTP GET)

Returns an update dataset according to the schema ROSATTE.xsd. The whole URL for each dataset may be retrieved using the above “querydatasets” requests.
The response is a dataset encoded to ROSATTE.xsd.

Example Request

https://app.trafikverket.se/rosattedownload/download/readDataSet?dataSetID=1uShiYqi%2fEe120s9P1ga7AAAACbPE9VBAAAAIxsW1UE%3d

Appendix 2 – REST Interface for Feedback Data

Basic Principle for the Interface

The output from a feedback service consists of a number of feedback datasets per received TN-ITS update dataset. Each dataset has an id which is unique per received update dataset (for which feedback is given).

Responsibilities for the Data Receiver (Provider of Feedback)

The data receiver responsible for the service shall make sure that, at some interval, at least one feedback dataset is generated for each received and integrated update dataset.
The feedback datasets shall be encoded according to ROSATTE D3.1 and the ROSATTE.xsd (listed in the document) and, at the moment, also available online here.

Responsibilities for the Client of the Service

There is no obligation for the provider of update datasets to also request the corresponding feedback datasets. The purpose of feedback is to provide information that might help improve the quality over time for the data exchange between provider and receiver.

Description of the Interface for Feedback Dataset Downloads

<<BASEURL>>/FEEDBACK/QUERYFEEDBACKS=DATASETID=[DATASETID] (HTTP GET)

Returns the available feedback datasets which have been created for the update dataset with the specified datasetId in a list according to the schema ROSATTE-rest.xsd
The list contains one <rst:ROSATTERestFeedbackRefList> with a <rst:ROSATTERestFeedbackRef>-element for each feedback dataset. Each element contains an xlink with the URL for the corresponding feedback dataset.

Example Request
https://app.somereceiver.com/Rosatte/feedback/queryfeedbacks?datasetId=1uShiYqi%2fEe120s9P1ga7AAAADTWDdVBAAAAuH0P1UE%3d

<<BASEURL>>/FEEDBACK/READFEEDBACK?DATASETID=[DATASETID]&FEEDBACK=[FEEDBACK] (HTTP GET)

Returns a feedback dataset according to the schema ROSATTE.xsd.

Appendix 3 – Most Recent XML Schemas for TN-ITS

ROSATTE.xsd

```
<?xml version="1.0" encoding="windows-1252"?>
<schema xmlns="http://www.w3.org/2001/XMLSchema"
xmlns:gml="http://www.opengis.net/gml/3.2"
xmlns:rst="http://www.ertico.com/en/subprojects/rosatte/rst"
targetNamespace="http://www.ertico.com/en/subprojects/rosatte/rst"
elementFormDefault="qualified" version="2009-05-20">
    <annotation>
        <documentation>Main schema file for the ROSATTE exchange schema, version
1.0</documentation>
    </annotation>
    <import namespace="http://www.opengis.net/gml/3.2"
schemaLocation="http://schemas.opengis.net/gml/3.2.1/gml.xsd"/>
    <include schemaLocation="LocationReferencing.xsd"/>
    <include schemaLocation="Update.xsd"/>
    <include schemaLocation="Conditions.xsd"/>
    <include schemaLocation="SafetyFeatures.xsd"/>
    <include schemaLocation="Feedback.xsd"/>
    <include schemaLocation="Dataset.xsd"/>
</schema>
```

Dataset.xsd

```
<?xml version="1.0" encoding="windows-1252"?>
<schema xmlns="http://www.w3.org/2001/XMLSchema"
xmlns:gml="http://www.opengis.net/gml/3.2" xmlns:gmd="http://www.isotc211.org/2005/gmd"
xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:rst="http://www.ertico.com/en/subprojects/rosatte/rst"
targetNamespace="http://www.ertico.com/en/subprojects/rosatte/rst"
elementFormDefault="qualified" version="2009-05-20">
    <include schemaLocation="SafetyFeatures.xsd"/>
    <include schemaLocation="Feedback.xsd"/>
    <import namespace="http://www.opengis.net/gml/3.2"
schemaLocation="http://schemas.opengis.net/gml/3.2.1/gml.xsd"/>
    <!--ISO 19139 Metadata will be used in the final version of this schema. To simplify testing, a
simpler metadata placeholder is created in this schema
    <import namespace="http://www.isotc211.org/2005/gmd"
schemaLocation="http://www.isotc211.org/schemas/2005/gmd/gmd.xsd"/>
    -->
    <complexType name="MetadataType">
        <sequence>
            <element name="datasetId" type="string"/>
            <element name="datasetCreationTime" type="dateTime"/>
        </sequence>
    </complexType>
    <!--XML Schema document created by ShapeChange-->
    <element name="ROSATTEDataset" type="rst:ROSATTEDatasetType" abstract="true"
substitutionGroup="gml:AbstractFeatureCollection"/>
```

```
    <complexType name="ROSATTEDatasetType" abstract="true">
        <complexContent>
            <extension base="gml:AbstractFeatureCollectionType">
                <sequence>
                    <!--The type for metadata shall in the final version be gmd:MD_Metadata_Type-->
                    <element name="metadata" type="rst:MetadataType" minOccurs="0"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="ROSATTEDatasetPropertyType">
        <sequence minOccurs="0">
            <element ref="rst:ROSATTEDataset"/>
        </sequence>
        <attributeGroup ref="gml:AssociationAttributeGroup"/>
        <attributeGroup ref="gml:OwnershipAttributeGroup"/>
    </complexType>
    <element name="ROSATTESafetyFeatureDataset" type="rst:ROSATTESafetyFeatureDatasetType"
substitutionGroup="rst:ROSATTEDataset"/>
    <complexType name="ROSATTESafetyFeatureDatasetType">
        <complexContent>
            <extension base="rst:ROSATTEDatasetType">
                <sequence>
                    <!--element name="safetyFeatures" type="rst:SafetyFeaturePropertyType"
minOccurs="0" maxOccurs="unbounded"/-->
                    <element name="type" type="rst:DatasetTypeType"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="ROSATTESafetyFeatureDatasetPropertyType">
        <sequence minOccurs="0">
            <element ref="rst:ROSATTESafetyFeatureDataset"/>
        </sequence>
        <attributeGroup ref="gml:AssociationAttributeGroup"/>
        <attributeGroup ref="gml:OwnershipAttributeGroup"/>
    </complexType>
    <simpleType name="DatasetTypeType">
        <restriction base="string">
            <enumeration value="Update"/>
            <enumeration value="Snapshot"/>
        </restriction>
    </simpleType>
    <element name="ROSATTEFeedbackDataset" type="rst:ROSATTEFeedbackDatasetType"
substitutionGroup="rst:ROSATTEDataset"/>
    <complexType name="ROSATTEFeedbackDatasetType">
        <complexContent>
            <extension base="rst:ROSATTEDatasetType">
                <sequence>
                    <element name="feedbackInfo" type="rst:FeedbackInformationPropertyType"/>
                </sequence>
```

```
            </extension>
        </complexContent>
    </complexType>
    <complexType name="ROSATTEFeedbackDatasetPropertyType">
        <sequence minOccurs="0">
            <element ref="rst:ROSATTEFeedbackDataset"/>
        </sequence>
        <attributeGroup ref="gml:AssociationAttributeGroup"/>
        <attributeGroup ref="gml:OwnershipAttributeGroup"/>
    </complexType>
</schema>
```

SafetyFeatures.xsd

```
<?xml version="1.0" encoding="windows-1252"?>
<schema xmlns="http://www.w3.org/2001/XMLSchema"
xmlns:gml="http://www.opengis.net/gml/3.2"
xmlns:rst="http://www.ertico.com/en/subprojects/rosatte/rst"
targetNamespace="http://www.ertico.com/en/subprojects/rosatte/rst"
elementFormDefault="qualified" version="2009-05-20">
    <include schemaLocation="Update.xsd"/>
    <include schemaLocation="LocationReferencing.xsd"/>
    <include schemaLocation="Conditions.xsd"/>
    <import namespace="http://www.opengis.net/gml/3.2"
schemaLocation="http://schemas.opengis.net/gml/3.2.1/gml.xsd"/>
    <!--XML Schema document created by ShapeChange-->
    <simpleType name="SafetyFeatureTypeCodeType">
        <union memberTypes="rst:SafetyFeatureTypeCodeEnumerationType
rst:SafetyFeatureTypeCodeOtherType"/>
    </simpleType>
    <simpleType name="SafetyFeatureTypeCodeEnumerationType">
        <restriction base="string">
            <enumeration value="PedestrianCrossing"/>
            <enumeration value="RestrictionForVehicles"/>
            <enumeration value="SpeedLimit"/>
            <enumeration value="StartOfSpeedLimit"/>
            <enumeration value="EndOfSpeedLimit"/>
            <enumeration value="ProhibitionOfOvertaking"/>
            <enumeration value="StartOfProhibitionOfOvertaking"/>
            <enumeration value="UseOfAudibleWarningDevicesProhibited"/>
            <enumeration value="StartOfUseOfAudibleWarningDevicesProhibited"/>
            <enumeration value="EndOfProhibitionOrRestriction"/>
            <enumeration value="ProhibitedTurn"/>
            <enumeration value="PassingWithoutStoppingProhibited"/>
            <enumeration value="Motorway"/>
            <enumeration value="StartOfMotorway"/>
            <enumeration value="EndOfMotorway"/>
            <enumeration value="NoEntry"/>
            <enumeration value="ClosedToAllVehiclesInBothDirections"/>
            <enumeration value="DirectionToBeFollowed"/>
            <enumeration value="SnowChainsCompulsory"/>
```

```
            <enumeration value="CompulsoryDirectionForVehicleCarryingDangerousGoods"/>
            <enumeration value="RoadForMotorVehicles"/>
            <enumeration value="StartOfRoadForMotorVehicles"/>
            <enumeration value="EndOfRoadForMotorVehicles"/>
            <enumeration value="BuiltUpArea"/>
            <enumeration value="StartOfBuiltUpArea"/>
            <enumeration value="EndOfBuiltUpArea"/>
            <enumeration value="ResidentialArea"/>
            <enumeration value="StartOfResidentialArea"/>
            <enumeration value="EndOfResidentialArea"/>
            <enumeration value="WarningSign"/>
            <enumeration value="RoadNumber"/>
            <enumeration value="RoadName"/>
        </restriction>
    </simpleType>
    <simpleType name="SafetyFeatureTypeCodeOtherType">
        <restriction base="string">
            <pattern value="other: \w{2,}"/>
        </restriction>
    </simpleType>
    <simpleType name="SafetyFeaturePropertyTypeCodeType">
        <union memberTypes="rst:SafetyFeaturePropertyTypeCodeEnumerationType
rst:SafetyFeaturePropertyTypeCodeOtherType"/>
    </simpleType>
    <simpleType name="SafetyFeaturePropertyTypeCodeEnumerationType">
        <restriction base="string">
            <enumeration value="MaximumSpeedLimit"/>
            <enumeration value="MinimumSpeedLimit"/>
            <enumeration value="RecommendedMaximumSpeedLimit"/>
            <enumeration value="RecommendedMinimumSpeedLimit"/>
            <enumeration value="MaximumWeightPerSingleAxle"/>
            <enumeration value="MaximumHeight"/>
            <enumeration value="MaximumWidth"/>
            <enumeration value="MaximumLadenWeight"/>
            <enumeration value="MaximumLength"/>
            <enumeration value="MaximumDistanceBetweenVehicles"/>
            <enumeration value="WarningSignType"/>
            <enumeration value="Controlled"/>
            <enumeration value="RoadNumber"/>
            <enumeration value="RoadName"/>
        </restriction>
    </simpleType>
    <simpleType name="SafetyFeaturePropertyTypeCodeOtherType">
        <restriction base="string">
            <pattern value="other: \w{2,}"/>
        </restriction>
    </simpleType>
    <simpleType name="WarningSignTypeType">
        <union memberTypes="rst:WarningSignTypeEnumerationType
rst:WarningSignTypeOtherType"/>
    </simpleType>
```

```
    <simpleType name="WarningSignTypeEnumerationType">
        <restriction base="string">
            <enumeration value="Danger"/>
            <enumeration value="DangerousIntersection"/>
            <enumeration value="DangerousCurve"/>
            <enumeration value="Slope"/>
            <enumeration value="UnevenRoadSurface"/>
            <enumeration value="SnowIceOrBlackIce"/>
            <enumeration value="SlipperyRoad"/>
            <enumeration value="Rockfall"/>
            <enumeration value="GravelOnTheRoad"/>
            <enumeration value="SideWind"/>
            <enumeration value="NarrowingRoad"/>
            <enumeration value="ConstructionWork"/>
            <enumeration value="Congestion"/>
            <enumeration value="TwoWayTraffic"/>
            <enumeration value="MovingBridge"/>
            <enumeration value="TrafficLightsAhead"/>
            <enumeration value="ChildrenPlaying"/>
            <enumeration value="PedestriansCrossing"/>
            <enumeration value="CyclistsCrossing"/>
            <enumeration value="AnimalsCrossing"/>
            <enumeration value="AirTraffic"/>
            <enumeration value="BusStops"/>
            <enumeration value="RailwayCrossing"/>
            <enumeration value="MooseCrossing"/>
        </restriction>
    </simpleType>
    <simpleType name="WarningSignTypeOtherType">
        <restriction base="string">
            <pattern value="other: \w{2,}"/>
        </restriction>
    </simpleType>
    <element name="SafetyAttributePropertyType" type="rst:SafetyAttributePropertyTypeType"
substitutionGroup="gml:AbstractGML"/>
    <complexType name="SafetyAttributePropertyTypeType">
        <complexContent>
            <extension base="gml:AbstractGMLType">
                <sequence>
                    <element name="EAID_1AA56D56_F5FD_4f5a_919E_CF38BC520604.SE"
type="rst:SafetyFeaturePropertyValuePropertyType" minOccurs="0" maxOccurs="unbounded"/>
                    <element name="unitOfmeasure" type="gml:UnitOfMeasureType"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="SafetyAttributePropertyTypePropertyType">
        <sequence minOccurs="0">
            <element ref="rst:SafetyAttributePropertyType"/>
        </sequence>
        <attributeGroup ref="gml:AssociationAttributeGroup"/>
```

```
        <attributeGroup ref="gml:OwnershipAttributeGroup"/>
    </complexType>
    <element name="SafetyFeature" type="rst:SafetyFeatureType" abstract="true"
substitutionGroup="gml:AbstractFeature"/>
    <complexType name="SafetyFeatureType" abstract="true">
        <complexContent>
            <extension base="gml:AbstractFeatureType">
                <sequence>
                    <element name="id" type="rst:SafetyFeatureIdPropertyType"/>
                    <element name="locationReference" type="rst:LocationReferencePropertyType"
minOccurs="0" maxOccurs="unbounded"/>
                    <!--validFrom made optional after v14-->
                    <element name="validFrom" type="date" minOccurs="0"/>
                    <element name="validTo" type="date" minOccurs="0"/>
                    <element name="updateInfo" type="rst:UpdateInfoPropertyType" minOccurs="0"/>
                    <!--source made optional after v14-->
                    <element name="source" type="rst:SafetyFeatureSourceType" minOccurs="0"/>
                    <!--v17 after London meeting-->
                    <element name="encodedGeometry" type="gml:GeometricPrimitivePropertyType"
minOccurs="0"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="SafetyFeaturePropertyType">
        <sequence minOccurs="0">
            <element ref="rst:SafetyFeature"/>
        </sequence>
        <attributeGroup ref="gml:AssociationAttributeGroup"/>
        <attributeGroup ref="gml:OwnershipAttributeGroup"/>
    </complexType>
    <simpleType name="SafetyFeatureSourceType">
        <annotation>
            <documentation>Value list for speedLimitSource.
[Euroroads]</documentation>
        </annotation>
        <restriction base="string">
            <enumeration value="FixedTrafficSign"/>
            <enumeration value="VariableTrafficSign"/>
            <enumeration value="Regulation"/>
            <enumeration value="TemporarySafetyFeature"/>
            <enumeration value="Other"/>
        </restriction>
    </simpleType>
    <element name="GenericSafetyFeature" type="rst:GenericSafetyFeatureType"
substitutionGroup="rst:SafetyFeature"/>
    <complexType name="GenericSafetyFeatureType">
        <complexContent>
            <extension base="rst:SafetyFeatureType">
                <sequence>
                    <!--type made optional after v14-->
```

```
                <element name="type" type="rst:SafetyFeatureTypeCodeType" minOccurs="0"/>
                <element name="properties" type="rst:SafetyFeaturePropertyValuePropertyType"
minOccurs="0" maxOccurs="unbounded"/>
                <element name="condition" type="rst:ConditionPropertyType" minOccurs="0"/>
            </sequence>
        </extension>
    </complexContent>
  </complexType>
  <complexType name="GenericSafetyFeaturePropertyType">
    <sequence minOccurs="0">
      <element ref="rst:GenericSafetyFeature"/>
    </sequence>
    <attributeGroup ref="gml:AssociationAttributeGroup"/>
    <attributeGroup ref="gml:OwnershipAttributeGroup"/>
  </complexType>
  <element name="SafetyFeatureId" type="rst:SafetyFeatureIdType"
substitutionGroup="gml:AbstractObject"/>
  <complexType name="SafetyFeatureIdType">
    <sequence>
      <element name="providerId" type="string"/>
      <element name="id" type="string"/>
    </sequence>
  </complexType>
  <complexType name="SafetyFeatureIdPropertyType">
    <sequence>
      <element ref="rst:SafetyFeatureId"/>
    </sequence>
  </complexType>
  <element name="SafetyFeaturePropertyValue" type="rst:SafetyFeaturePropertyValueType"
substitutionGroup="gml:AbstractObject"/>
  <complexType name="SafetyFeaturePropertyValueType">
    <sequence>
      <element name="type" type="rst:SafetyFeaturePropertyTypeCodeType"/>
      <element name="propertyValue" maxOccurs="unbounded"/>
    </sequence>
  </complexType>
  <complexType name="SafetyFeaturePropertyValuePropertyType">
    <sequence>
      <element ref="rst:SafetyFeaturePropertyValue"/>
    </sequence>
  </complexType>
</schema>
```

Conditions.xsd

```
<?xml version="1.0" encoding="windows-1252"?>
<!--Change history:-->
<!--Date            D3.1 version  Author   Change-->
<!--
=============================================================================
==============-->
```

```
<!--2009-12-02 18 LWi Added weight condition in response to action 63 from Paris meeting 9-10 Nov 2009-->
<schema xmlns="http://www.w3.org/2001/XMLSchema"
xmlns:gml="http://www.opengis.net/gml/3.2"
xmlns:rst="http://www.ertico.com/en/subprojects/rosatte/rst"
targetNamespace="http://www.ertico.com/en/subprojects/rosatte/rst"
elementFormDefault="qualified" version="2009-05-20">
    <import namespace="http://www.opengis.net/gml/3.2"
schemaLocation="http://schemas.opengis.net/gml/3.2.1/gml.xsd"/>
    <!--XML Schema document created by ShapeChange-->
    <element name="LoadCondition" type="rst:LoadConditionType"
substitutionGroup="rst:Condition"/>
    <complexType name="LoadConditionType">
        <complexContent>
            <extension base="rst:ConditionType">
                <sequence>
                    <element name="loadType" type="rst:LoadTypeType"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="LoadConditionPropertyType">
        <sequence>
            <element ref="rst:LoadCondition"/>
        </sequence>
    </complexType>
    <element name="AreaCondition" type="rst:AreaConditionType"
substitutionGroup="rst:Condition"/>
    <complexType name="AreaConditionType">
        <complexContent>
            <extension base="rst:ConditionType">
                <sequence>
                    <element name="areaType" type="rst:AreaTypeType"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="AreaConditionPropertyType">
        <sequence>
            <element ref="rst:AreaCondition"/>
        </sequence>
    </complexType>
    <simpleType name="ConditionOperatorType">
        <restriction base="string">
            <enumeration value="OR"/>
            <enumeration value="XOR"/>
            <enumeration value="AND"/>
        </restriction>
    </simpleType>
    <element name="Condition" type="rst:ConditionType" abstract="true"
substitutionGroup="gml:AbstractObject"/>
```

```
    <complexType name="ConditionType" abstract="true">
        <sequence>
            <element name="negate" type="boolean" minOccurs="0"/>
        </sequence>
    </complexType>
    <complexType name="ConditionPropertyType">
        <sequence>
            <element ref="rst:Condition"/>
        </sequence>
    </complexType>
    <element name="RoadCategoryCondition" type="rst:RoadCategoryConditionType"
substitutionGroup="rst:Condition"/>
    <complexType name="RoadCategoryConditionType">
        <complexContent>
            <extension base="rst:ConditionType">
                <sequence>
                    <element name="roadCategory" type="rst:RoadCategoryTypeType"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="RoadCategoryConditionPropertyType">
        <sequence>
            <element ref="rst:RoadCategoryCondition"/>
        </sequence>
    </complexType>
    <element name="IntegerInterval" type="rst:IntegerIntervalType"
substitutionGroup="gml:AbstractObject"/>
    <complexType name="IntegerIntervalType">
        <sequence>
            <element name="start" type="integer"/>
            <element name="length" type="integer" minOccurs="0"/>
        </sequence>
    </complexType>
    <complexType name="IntegerIntervalPropertyType">
        <sequence>
            <element ref="rst:IntegerInterval"/>
        </sequence>
    </complexType>
    <simpleType name="RoadCategoryTypeType">
        <union memberTypes="rst:RoadCategoryTypeEnumerationType
rst:RoadCategoryTypeOtherType"/>
    </simpleType>
    <simpleType name="RoadCategoryTypeEnumerationType">
        <restriction base="string">
            <enumeration value="Motorway"/>
            <enumeration value="RoadWithDualCarriageway"/>
            <enumeration value="RoadWithSingleCarriageway"/>
            <enumeration value="UrbanRoad"/>
            <enumeration value="ResidentialAreaRoad"/>
            <enumeration value="OtherRoad"/>
```

```
        </restriction>
    </simpleType>
    <simpleType name="RoadCategoryTypeOtherType">
        <restriction base="string">
            <pattern value="other: \w{2,}"/>
        </restriction>
    </simpleType>
    <simpleType name="FuzzyTimeType">
        <annotation>
            <documentation>Not precised described time.
[EuroRoadS]</documentation>
        </annotation>
        <union memberTypes="rst:FuzzyTimeEnumerationType rst:FuzzyTimeOtherType"/>
    </simpleType>
    <simpleType name="FuzzyTimeEnumerationType">
        <annotation>
            <documentation>Not precised described time.
[EuroRoadS]</documentation>
        </annotation>
        <restriction base="string">
            <enumeration value="External"/>
            <enumeration value="Dawn"/>
            <enumeration value="Dusk"/>
            <enumeration value="School"/>
            <enumeration value="Holiday"/>
            <enumeration value="Winter"/>
            <enumeration value="Spring"/>
            <enumeration value="Summer"/>
            <enumeration value="Autumn"/>
            <enumeration value="HighTide"/>
            <enumeration value="LowTide"/>
            <enumeration value="HighWater"/>
            <enumeration value="LowWater"/>
            <enumeration value="WetSeason"/>
            <enumeration value="DrySeason"/>
            <enumeration value="PeakHours"/>
            <enumeration value="OffPeakHours"/>
            <enumeration value="Day"/>
            <enumeration value="Night"/>
        </restriction>
    </simpleType>
    <simpleType name="FuzzyTimeOtherType">
        <restriction base="string">
            <pattern value="other: \w{2,}"/>
        </restriction>
    </simpleType>
    <element name="ValidityPeriod" type="rst:ValidityPeriodType"
substitutionGroup="gml:AbstractObject">
        <annotation>
            <documentation>Definition of a validity period.
[TWG TN]</documentation>
```

```
        </annotation>
    </element>
    <complexType name="ValidityPeriodType">
        <sequence>
            <element name="timePeriodType" type="rst:TimePeriodTypeType" minOccurs="0"/>
            <element name="timePeriodValidity" type="rst:TimePeriodValidityType" minOccurs="0"/>
            <element name="description" type="string" minOccurs="0"/>
            <element name="year" type="rst:IntegerIntervalPropertyType" minOccurs="0"/>
            <element name="month" type="rst:IntegerIntervalPropertyType" minOccurs="0"/>
            <element name="week" type="rst:IntegerIntervalPropertyType" minOccurs="0"/>
            <element name="day" type="rst:IntegerIntervalPropertyType" minOccurs="0"/>
            <element name="weekdayType" type="rst:WeekdayTypeType" minOccurs="0"/>
            <element name="weekday" type="rst:IntegerIntervalPropertyType" minOccurs="0"/>
            <element name="time" type="rst:TimeIntervalType" minOccurs="0"/>
            <element name="fuzzyTimePeriod" type="rst:FuzzyTimePeriodPropertyType"
minOccurs="0"/>
            <!--Added after v14-->
            <element name="timeDomainGDF" type="string" minOccurs="0"/>
        </sequence>
    </complexType>
    <complexType name="ValidityPeriodPropertyType">
        <sequence>
            <element ref="rst:ValidityPeriod"/>
        </sequence>
    </complexType>
    <simpleType name="WeatherTypeType">
        <annotation>
            <documentation>Value list for weatherCondition.
[Euroroads]</documentation>
        </annotation>
        <union memberTypes="rst:WeatherTypeEnumerationType rst:WeatherTypeOtherType"/>
    </simpleType>
    <simpleType name="WeatherTypeEnumerationType">
        <annotation>
            <documentation>Value list for weatherCondition.
[Euroroads]</documentation>
        </annotation>
        <restriction base="string">
            <enumeration value="Fog"/>
            <enumeration value="Ice"/>
            <enumeration value="Rain"/>
            <enumeration value="AirPollution"/>
            <enumeration value="Snow"/>
            <enumeration value="Wind"/>
            <enumeration value="Wet"/>
        </restriction>
    </simpleType>
    <simpleType name="WeatherTypeOtherType">
        <restriction base="string">
            <pattern value="other: \w{2,}"/>
        </restriction>
```

```
    </simpleType>
    <simpleType name="TimePeriodValidityType">
        <annotation>
            <documentation>Defines if the time period is included or excluded.
[EuroRoadS]</documentation>
        </annotation>
        <restriction base="string">
            <enumeration value="IncludePeriod"/>
            <enumeration value="ExcludePeriod"/>
        </restriction>
    </simpleType>
    <element name="LaneCondition" type="rst:LaneConditionType"
substitutionGroup="rst:Condition"/>
    <complexType name="LaneConditionType">
        <complexContent>
            <extension base="rst:ConditionType">
                <sequence>
                    <element name="startLane" type="integer"/>
                    <element name="laneExtension" type="integer"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="LaneConditionPropertyType">
        <sequence>
            <element ref="rst:LaneCondition"/>
        </sequence>
    </complexType>
    <simpleType name="TimePeriodTypeType">
        <annotation>
            <documentation>Defines if the time period occurs once or are repeated.
[EuroRoadS]</documentation>
        </annotation>
        <restriction base="string">
            <enumeration value="OccursOnce"/>
            <enumeration value="Yearly"/>
            <enumeration value="Monthly"/>
            <enumeration value="Weekly"/>
            <enumeration value="Daily"/>
        </restriction>
    </simpleType>
    <simpleType name="VehicleTypeType">
        <annotation>
            <documentation>A type of vehicle.
[TWG TN]</documentation>
        </annotation>
        <restriction base="string">
            <enumeration value="AllVehicle"/>
            <enumeration value="Bicycle"/>
            <enumeration value="CarWithTrailer"/>
            <enumeration value="DeliveryTruck"/>
```

```
            <enumeration value="EmergencyVehicle"/>
            <enumeration value="EmployeeVehicle"/>
            <enumeration value="FacilityVehicle"/>
            <enumeration value="FarmVehicle"/>
            <enumeration value="HighOccupancyVehicle"/>
            <enumeration value="LightRail"/>
            <enumeration value="MailVehicle"/>
            <enumeration value="MilitaryVehicle"/>
            <enumeration value="Moped"/>
            <enumeration value="Motorcycle"/>
            <enumeration value="PassengerCar"/>
            <enumeration value="Pedestrian"/>
            <enumeration value="PrivateBus"/>
            <enumeration value="PublicBus"/>
            <enumeration value="ResidentialVehicle"/>
            <enumeration value="SchoolBus"/>
            <enumeration value="SnowChainEquippedVehicle"/>
            <enumeration value="Tanker"/>
            <enumeration value="Taxi"/>
            <enumeration value="TransportTruck"/>
            <enumeration value="TrolleyBus"/>
            <enumeration value="VehicleForDisabledPerson"/>
            <enumeration value="VehicleWithSnowChainsOrSnowTyres"/>
        </restriction>
    </simpleType>
    <element name="ConditionSet" type="rst:ConditionSetType"
substitutionGroup="rst:Condition"/>
    <complexType name="ConditionSetType">
        <complexContent>
            <extension base="rst:ConditionType">
                <sequence>
                    <element name="conditions" type="rst:ConditionPropertyType"
maxOccurs="unbounded"/>
                    <element name="operator" type="rst:ConditionOperatorType"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="ConditionSetPropertyType">
        <sequence>
            <element ref="rst:ConditionSet"/>
        </sequence>
    </complexType>
    <element name="FuzzyTimePeriod" type="rst:FuzzyTimePeriodType"
substitutionGroup="gml:AbstractObject">
        <annotation>
            <documentation>Time described with a fuzzy time.
[EuroRoadS]</documentation>
        </annotation>
    </element>
    <complexType name="FuzzyTimePeriodType">
```

```
        <sequence>
            <element name="beginOrDuration" type="rst:FuzzyTimeType"/>
            <element name="endOrDuration" type="rst:FuzzyTimeType" minOccurs="0"/>
        </sequence>
    </complexType>
    <complexType name="FuzzyTimePeriodPropertyType">
        <sequence>
            <element ref="rst:FuzzyTimePeriod"/>
        </sequence>
    </complexType>
    <element name="WeatherCondition" type="rst:WeatherConditionType"
substitutionGroup="rst:Condition"/>
    <complexType name="WeatherConditionType">
        <complexContent>
            <extension base="rst:ConditionType">
                <sequence>
                    <element name="weatherType" type="rst:WeatherTypeType"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="WeatherConditionPropertyType">
        <sequence>
            <element ref="rst:WeatherCondition"/>
        </sequence>
    </complexType>
    <element name="TimeCondition" type="rst:TimeConditionType"
substitutionGroup="rst:Condition"/>
    <complexType name="TimeConditionType">
        <complexContent>
            <extension base="rst:ConditionType">
                <sequence>
                    <element name="validityPeriod" type="rst:ValidityPeriodPropertyType"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="TimeConditionPropertyType">
        <sequence>
            <element ref="rst:TimeCondition"/>
        </sequence>
    </complexType>
    <simpleType name="WeekdayTypeType">
        <annotation>
            <documentation>Defines where the week number is counted from.
[EuroRoadS]</documentation>
        </annotation>
        <restriction base="string">
            <enumeration value="Absolute"/>
            <enumeration value="FromEndOfMonth"/>
            <enumeration value="FromStartOfMonth"/>
```

```
        </restriction>
    </simpleType>
    <simpleType name="AreaTypeType">
        <annotation>
            <documentation>Specifies a reason for the existance of the safety
feature</documentation>
        </annotation>
        <union memberTypes="rst:AreaTypeEnumerationType rst:AreaTypeOtherType"/>
    </simpleType>
    <simpleType name="AreaTypeEnumerationType">
        <annotation>
            <documentation>Specifies a reason for the existance of the safety
feature</documentation>
        </annotation>
        <restriction base="string">
            <enumeration value="InNationalPark"/>
            <enumeration value="InsideCities"/>
            <enumeration value="NearRailroadCrossing"/>
            <enumeration value="NearSchool"/>
            <enumeration value="OutsideCities"/>
            <enumeration value="TrafficCalmingArea"/>
        </restriction>
    </simpleType>
    <simpleType name="AreaTypeOtherType">
        <restriction base="string">
            <pattern value="other: \w{2,}"/>
        </restriction>
    </simpleType>
    <simpleType name="LoadTypeType">
        <union memberTypes="rst:LoadTypeEnumerationType rst:LoadTypeOtherType"/>
    </simpleType>
    <simpleType name="LoadTypeEnumerationType">
        <restriction base="string">
            <enumeration value="ExplosiveLoad"/>
            <enumeration value="WaterPollutingLoad"/>
            <enumeration value="OtherDangerousLoad"/>
        </restriction>
    </simpleType>
    <simpleType name="LoadTypeOtherType">
        <restriction base="string">
            <pattern value="other: \w{2,}"/>
        </restriction>
    </simpleType>
    <element name="VehicleCondition" type="rst:VehicleConditionType"
substitutionGroup="rst:Condition"/>
    <complexType name="VehicleConditionType">
        <complexContent>
            <extension base="rst:ConditionType">
                <sequence>
                    <element name="vehicleType" type="rst:VehicleTypeType"/>
                </sequence>
```

```
            </extension>
        </complexContent>
    </complexType>
    <complexType name="VehicleConditionPropertyType">
        <sequence>
            <element ref="rst:VehicleCondition"/>
        </sequence>
    </complexType>
    <element name="TimeInterval" type="rst:TimeIntervalType"
substitutionGroup="gml:AbstractObject"/>
    <complexType name="TimeIntervalType">
        <sequence>
            <element name="begin" type="time"/>
            <element name="lengthSeconds" type="integer" minOccurs="0"/>
        </sequence>
    </complexType>
    <complexType name="TimeIntervalPropertyType">
        <sequence>
            <element ref="rst:TimeInterval"/>
        </sequence>
    </complexType>
    <element name="WeightCondition" type="rst:WeightConditionType"
substitutionGroup="rst:Condition"/>
    <complexType name="WeightConditionType">
        <complexContent>
            <extension base="rst:ConditionType">
                <sequence>
                    <element name="totalWeight" type="gml:MeasureType"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="WeightConditionPropertyType">
        <sequence>
            <element ref="rst:WeightCondition"/>
        </sequence>
    </complexType>
</schema>
```

LocationReferencing.xsd

```
<?xml version="1.0" encoding="windows-1252"?>
<schema xmlns="http://www.w3.org/2001/XMLSchema"
xmlns:gml="http://www.opengis.net/gml/3.2" xmlns:net="urn:x-
inspire:specification:gmlas:Network:3.2"
xmlns:rst="http://www.ertico.com/en/subprojects/rosatte/rst"
xmlns:openlr="http://www.openlr.org/openlr" xmlns:TPEG="TPEG"
targetNamespace="http://www.ertico.com/en/subprojects/rosatte/rst"
elementFormDefault="qualified" version="2009-05-20">
    <import namespace="urn:x-inspire:specification:gmlas:Network:3.2"
schemaLocation="http://inspire.ec.europa.eu/schemas/net/3.2/Network.xsd"/>
```

```
    <import namespace="http://www.opengis.net/gml/3.2"
schemaLocation="http://schemas.opengis.net/gml/3.2.1/gml.xsd"/>
    <import namespace="http://www.openlr.org/openlr" schemaLocation="./openlr.xsd"/>
    <import namespace="TPEG" schemaLocation="./Agora_DLR1LocationReference.xsd"/>
    <!--XML Schema document created by ShapeChange-->
    <element name="LocationReference" type="rst:LocationReferenceType" abstract="true"
substitutionGroup="gml:AbstractGML"/>
    <complexType name="LocationReferenceType" abstract="true">
        <complexContent>
            <extension base="gml:AbstractGMLType">
                <sequence/>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="LocationReferencePropertyType">
        <sequence minOccurs="0">
            <element ref="rst:LocationReference"/>
        </sequence>
        <attributeGroup ref="gml:AssociationAttributeGroup"/>
        <attributeGroup ref="gml:OwnershipAttributeGroup"/>
    </complexType>
    <element name="DirectLocationReference" type="rst:DirectLocationReferenceType"
abstract="true" substitutionGroup="rst:LocationReference"/>
    <complexType name="DirectLocationReferenceType" abstract="true">
        <complexContent>
            <extension base="rst:LocationReferenceType">
                <sequence/>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="DirectLocationReferencePropertyType">
        <sequence minOccurs="0">
            <element ref="rst:DirectLocationReference"/>
        </sequence>
        <attributeGroup ref="gml:AssociationAttributeGroup"/>
        <attributeGroup ref="gml:OwnershipAttributeGroup"/>
    </complexType>
    <element name="IndirectLocationReference" type="rst:IndirectLocationReferenceType"
abstract="true" substitutionGroup="rst:LocationReference"/>
    <complexType name="IndirectLocationReferenceType" abstract="true">
        <complexContent>
            <extension base="rst:LocationReferenceType">
                <sequence/>
            </extension>
        </complexContent>
    </complexType>
    <element name="INSPIRELinearLocation" type="rst:INSPIRELinearLocationType" abstract="false"
substitutionGroup="rst:IndirectLocationReference"/>
    <complexType name="INSPIRELinearLocationType" abstract="false">
        <complexContent>
            <extension base="rst:IndirectLocationReferenceType">
```

```
            <sequence>
                <element ref="net:NetworkReference"/>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<complexType name="IndirectLocationReferencePropertyType">
    <sequence minOccurs="0">
        <element ref="rst:IndirectLocationReference"/>
    </sequence>
    <attributeGroup ref="gml:AssociationAttributeGroup"/>
    <attributeGroup ref="gml:OwnershipAttributeGroup"/>
</complexType>
<element name="AgoraLocationString" type="rst:AgoraLocationStringType" abstract="false"
substitutionGroup="rst:DirectLocationReference"/>
<complexType name="AgoraLocationStringType" abstract="false">
    <complexContent>
        <extension base="rst:DirectLocationReferenceType">
            <sequence>
                <element name="base64String" type="string"/>
                <element name="agoraBinaryVersion" type="rst:AgoraBinaryVersionType"/>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<element name="AgoraLocation" type="rst:AgoraLocationType" abstract="false"
substitutionGroup="rst:DirectLocationReference"/>
<complexType name="AgoraLocationType" abstract="false">
    <complexContent>
        <extension base="rst:DirectLocationReferenceType">
            <sequence>
                <element ref="TPEG:DLR1LocationReference"/>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<simpleType name="OpenLRBinaryVersionType">
    <restriction base="string">
        <enumeration value="1.4"/>
    </restriction>
</simpleType>
<simpleType name="AgoraBinaryVersionType">
    <restriction base="string">
        <enumeration value="1.0"/>
        <enumeration value="1.3"/>
        <enumeration value="2.4"/>
        <enumeration value="2.5"/>
        <enumeration value="3.0"/>
    </restriction>
</simpleType>
```

```
    <element name="OpenLRLocationString" type="rst:OpenLRLocationStringType" abstract="false"
substitutionGroup="rst:DirectLocationReference"/>
    <complexType name="OpenLRLocationStringType" abstract="false">
        <complexContent>
            <extension base="rst:DirectLocationReferenceType">
                <sequence>
                    <element name="base64String" type="string"/>
                    <element name="OpenLRBinaryVersion" type="rst:OpenLRBinaryVersionType"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <element name="OpenLRLocation" type="rst:OpenLRLocationType" abstract="false"
substitutionGroup="rst:DirectLocationReference"/>
    <complexType name="OpenLRLocationType" abstract="false">
        <complexContent>
            <extension base="rst:DirectLocationReferenceType">
                <sequence>
                    <element ref="openlr:OpenLR"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
</schema>
```

Update.xsd

```
<?xml version="1.0" encoding="windows-1252"?>
<schema xmlns="http://www.w3.org/2001/XMLSchema"
xmlns:gml="http://www.opengis.net/gml/3.2"
xmlns:rst="http://www.ertico.com/en/subprojects/rosatte/rst"
targetNamespace="http://www.ertico.com/en/subprojects/rosatte/rst"
elementFormDefault="qualified" version="2009-05-20">
    <import namespace="http://www.opengis.net/gml/3.2"
schemaLocation="http://schemas.opengis.net/gml/3.2.1/gml.xsd"/>
    <!--XML Schema document created by ShapeChange-->
    <simpleType name="UpdateTypeType">
        <restriction base="string">
            <enumeration value="Add"/>
            <enumeration value="Modify"/>
            <enumeration value="Remove"/>
        </restriction>
    </simpleType>
    <element name="UpdateInfo" type="rst:UpdateInfoType"
substitutionGroup="gml:AbstractObject"/>
    <complexType name="UpdateInfoType">
        <sequence>
            <element name="type" type="rst:UpdateTypeType"/>
        </sequence>
    </complexType>
    <complexType name="UpdateInfoPropertyType">
```

```
        <sequence>
            <element ref="rst:UpdateInfo"/>
        </sequence>
    </complexType>
</schema>
```

Feedback.xsd

```
<?xml version="1.0" encoding="windows-1252"?>
<schema xmlns="http://www.w3.org/2001/XMLSchema"
xmlns:gml="http://www.opengis.net/gml/3.2"
xmlns:rst="http://www.ertico.com/en/subprojects/rosatte/rst"
targetNamespace="http://www.ertico.com/en/subprojects/rosatte/rst"
elementFormDefault="qualified" version="2009-05-20">
    <include schemaLocation="SafetyFeatures.xsd"/>
    <import namespace="http://www.opengis.net/gml/3.2"
schemaLocation="http://schemas.opengis.net/gml/3.2.1/gml.xsd"/>
    <!--XML Schema document created by ShapeChange-->
    <simpleType name="SafetyFeatureEventCodeType">
        <union memberTypes="rst:SafetyFeatureEventCodeEnumerationType
rst:SafetyFeatureEventCodeOtherType"/>
    </simpleType>
    <simpleType name="SafetyFeatureEventCodeEnumerationType">
        <restriction base="string">
            <enumeration value="DecodeLocationError"/>
            <enumeration value="DecodeLocationErrorGeometryMismatch"/>
            <enumeration value="DecodeLocationRoadDescriptorMismatch"/>
            <enumeration value="IllegalPropertyValue"/>
            <enumeration value="Success"/>
        </restriction>
    </simpleType>
    <simpleType name="SafetyFeatureEventCodeOtherType">
        <restriction base="string">
            <pattern value="other: \w{2,}"/>
        </restriction>
    </simpleType>
    <element name="FreeTextEvent" type="rst:FreeTextEventType"
substitutionGroup="rst:FeedbackLogEvent"/>
    <complexType name="FreeTextEventType">
        <complexContent>
            <extension base="rst:FeedbackLogEventType">
                <sequence>
                    <element name="text" type="string"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="FreeTextEventPropertyType">
        <sequence minOccurs="0">
            <element ref="rst:FreeTextEvent"/>
        </sequence>
```

```
        <attributeGroup ref="gml:AssociationAttributeGroup"/>
        <attributeGroup ref="gml:OwnershipAttributeGroup"/>
    </complexType>
    <element name="FeedbackInformation" type="rst:FeedbackInformationType"
substitutionGroup="gml:AbstractGML"/>
    <complexType name="FeedbackInformationType">
        <complexContent>
            <extension base="gml:AbstractGMLType">
                <sequence>
                    <element name="log" type="rst:FeedbackLogPropertyType"/>
                    <element name="datasetIdentifier" type="string"/>
                    <element name="processed" type="dateTime"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="FeedbackInformationPropertyType">
        <sequence minOccurs="0">
            <element ref="rst:FeedbackInformation"/>
        </sequence>
        <attributeGroup ref="gml:AssociationAttributeGroup"/>
        <attributeGroup ref="gml:OwnershipAttributeGroup"/>
    </complexType>
    <element name="GeneralFeedbackEvent" type="rst:GeneralFeedbackEventType"
substitutionGroup="rst:FeedbackLogEvent"/>
    <complexType name="GeneralFeedbackEventType">
        <complexContent>
            <extension base="rst:FeedbackLogEventType">
                <sequence>
                    <element name="eventCode" type="rst:GeneralFeedbackEventCodeType"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="GeneralFeedbackEventPropertyType">
        <sequence minOccurs="0">
            <element ref="rst:GeneralFeedbackEvent"/>
        </sequence>
        <attributeGroup ref="gml:AssociationAttributeGroup"/>
        <attributeGroup ref="gml:OwnershipAttributeGroup"/>
    </complexType>
    <element name="SafetyFeatureEvent" type="rst:SafetyFeatureEventType"
substitutionGroup="rst:FeedbackLogEvent"/>
    <complexType name="SafetyFeatureEventType">
        <complexContent>
            <extension base="rst:FeedbackLogEventType">
                <sequence>
                    <element name="safetyFeatureId" type="rst:SafetyFeatureIdPropertyType"/>
                    <element name="safetyFeaturePropertyType"
type="rst:SafetyFeaturePropertyTypeCodeType" minOccurs="0"/>
                    <element name="eventCode" type="rst:SafetyFeatureEventCodeType"/>
```

```
                <!--v17 after London meeting-->
                <element name="decodedGeometry" type="gml:GeometricPrimitivePropertyType"
minOccurs="0"/>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<complexType name="SafetyFeatureEventPropertyType">
    <sequence minOccurs="0">
        <element ref="rst:SafetyFeatureEvent"/>
    </sequence>
    <attributeGroup ref="gml:AssociationAttributeGroup"/>
    <attributeGroup ref="gml:OwnershipAttributeGroup"/>
</complexType>
<element name="FeedbackLogEvent" type="rst:FeedbackLogEventType" abstract="true"
substitutionGroup="gml:AbstractGML"/>
<complexType name="FeedbackLogEventType" abstract="true">
    <complexContent>
        <extension base="gml:AbstractGMLType">
            <sequence/>
        </extension>
    </complexContent>
</complexType>
<complexType name="FeedbackLogEventPropertyType">
    <sequence minOccurs="0">
        <element ref="rst:FeedbackLogEvent"/>
    </sequence>
    <attributeGroup ref="gml:AssociationAttributeGroup"/>
    <attributeGroup ref="gml:OwnershipAttributeGroup"/>
</complexType>
<simpleType name="GeneralFeedbackEventCodeType">
    <union memberTypes="rst:GeneralFeedbackEventCodeEnumerationType
rst:GeneralFeedbackEventCodeOtherType"/>
</simpleType>
<simpleType name="GeneralFeedbackEventCodeEnumerationType">
    <restriction base="string">
        <enumeration value="SchemaVersionMismatch"/>
    </restriction>
</simpleType>
<simpleType name="GeneralFeedbackEventCodeOtherType">
    <restriction base="string">
        <pattern value="other: \w{2,}"/>
    </restriction>
</simpleType>
<element name="SummaryInfo" type="rst:SummaryInfoType"
substitutionGroup="gml:AbstractObject"/>
<complexType name="SummaryInfoType">
    <sequence>
        <element name="nrSuccess" type="integer"/>
        <element name="nrFail" type="integer"/>
    </sequence>
```

```
    </complexType>
    <complexType name="SummaryInfoPropertyType">
        <sequence>
            <element ref="rst:SummaryInfo"/>
        </sequence>
    </complexType>
    <element name="FeedbackLog" type="rst:FeedbackLogType"
substitutionGroup="gml:AbstractGML"/>
    <complexType name="FeedbackLogType">
        <complexContent>
            <extension base="gml:AbstractGMLType">
                <sequence>
                    <element name="events" type="rst:FeedbackLogEventPropertyType" minOccurs="0"
maxOccurs="unbounded"/>
                    <element name="summary" type="rst:SummaryInfoPropertyType"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <complexType name="FeedbackLogPropertyType">
        <sequence minOccurs="0">
            <element ref="rst:FeedbackLog"/>
        </sequence>
        <attributeGroup ref="gml:AssociationAttributeGroup"/>
        <attributeGroup ref="gml:OwnershipAttributeGroup"/>
    </complexType>
</schema>
```

ROSATTE-rest.xsd

```
<?xml version="1.0" encoding="windows-1252"?>
<schema xmlns:desrst="http://www.ptvag.com/rosatte/dataexchange/rest"
xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:gml="http://www.opengis.net/gml/3.2"
xmlns:rst="http://www.ertico.com/en/subprojects/rosatte/rst"
xmlns="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.ptvag.com/rosatte/dataexchange/rest"
elementFormDefault="qualified" version="2009-05-20">
    <import namespace="http://www.ertico.com/en/subprojects/rosatte/rst"
schemaLocation="./ROSATTE.xsd"/>
    <import namespace="http://www.opengis.net/gml/3.2"
schemaLocation="http://schemas.opengis.net/gml/3.2.1/gml.xsd"/>
    <!--<import namespace="http://www.w3.org/1999/xlink" schemaLocation="./xlink/xlinks.xsd"/>-
->
    <import namespace="http://www.w3.org/1999/xlink"
schemaLocation="http://www.w3.org/1999/xlink.xsd"/>
    <annotation>
        <documentation>Main schema file for the ROSATTE RESTful API, version
1.0</documentation>
    </annotation>
    <complexType name="ROSATTERestDatasetRefType">
        <attributeGroup ref="xlink:simpleAttrs"/>
```

```
    </complexType>
    <complexType name="ROSATTERestFeedbackRefType">
        <attributeGroup ref="xlink:simpleAttrs"/>
    </complexType>
    <element name="ROSATTERestDatasetRefList">
        <complexType>
            <sequence>
                <element name="ROSATTERestDatasetRef" type="desrst:ROSATTERestDatasetRefType"
minOccurs="0" maxOccurs="unbounded"/>
            </sequence>
        </complexType>
    </element>
    <element name="ROSATTERestFeedbackRefList">
        <complexType>
            <sequence>
                <element name="ROSATTERestFeedbackRef"
type="desrst:ROSATTERestFeedbackRefType" minOccurs="0" maxOccurs="unbounded"/>
            </sequence>
        </complexType>
    </element>
    <element name="ROSATTESafetyFeatureDatasetElement">
        <complexType>
            <complexContent>
                <extension base="rst:ROSATTEDatasetType">
                    <sequence>
                        <element name="type" type="rst:DatasetTypeType"/>
                    </sequence>
                </extension>
            </complexContent>
        </complexType>
    </element>
    <element name="FeedbackInformationElement">
        <complexType>
            <complexContent>
                <extension base="gml:AbstractGMLType">
                    <sequence>
                        <element name="log" type="rst:FeedbackLogPropertyType"/>
                        <element name="datasetIdentifier" type="string"/>
                        <element name="processed" type="dateTime"/>
                    </sequence>
                </extension>
            </complexContent>
        </complexType>
    </element>
</schema>
```

data-exchange.wadl.xml

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<application     xmlns="http://wadl.dev.java.net/2009/02"
                 xmlns:rst="http://www.ptvag.com/rosatte/dataexchange/rest"
```

```
                xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
                xsi:schemaLocation="http://wadl.dev.java.net/2009/02
https://www.w3.org/Submission/wadl/wadl.xsd http://www.ptvag.com/rosatte/dataexchange/rest
.\\ROSATTE-REST.xsd">
  <doc xmlns:jersey="http://jersey.dev.java.net/" jersey:generatedBy="Jersey: 1.1.0-ea 04/30/2009
05:54 PM"/>
  <resources base="http://localhost:8080/data-exchange-service/">
    <resource path="/download">
      <resource path="/queryDataSets">
        <method name="GET" id="getQueryDataSets">
          <request>
            <param xmlns:xs="http://www.w3.org/2001/XMLSchema" default="{0,0}"
type="xs:string" style="query" name="lastValidDataSetID"/>
          </request>
          <response>
            <representation mediaType="application/xml"
element="rst:ROSATTERestDatasetRefList"/>
          </response>
        </method>
      </resource>
      <resource path="/readDataSet">
        <method name="GET" id="getReadDataSet">
          <request>
            <param xmlns:xs="http://www.w3.org/2001/XMLSchema" type="xs:string"
style="query" name="dataSetID"/>
          </request>
          <response>
            <representation mediaType="application/xml"
element="rst:ROSATTESafetyFeatureDataset"/>
          </response>
        </method>
      </resource>
    </resource>
    <resource path="/feedback">
      <resource path="/queryFeedbacks">
        <method name="GET" id="getQueryFeedbacks">
          <request>
            <param xmlns:xs="http://www.w3.org/2001/XMLSchema" type="xs:string"
style="query" name="dataSetID"/>
          </request>
          <response>
            <representation mediaType="application/xml"
element="rst:ROSATTERestFeedbackRefList"/>
          </response>
        </method>
      </resource>
      <resource path="/readFeedback">
        <method name="GET" id="readFeedback">
          <request>
            <param xmlns:xs="http://www.w3.org/2001/XMLSchema" type="xs:string"
style="query" name="dataSetID"/>
```

```
            <param xmlns:xs="http://www.w3.org/2001/XMLSchema" type="xs:string"
style="query" name="feedbackID"/>
          </request>
          <response>
            <representation mediaType="application/xml"
element="rst:ROSATTEFeedbackDataset"/>
          </response>
        </method>
      </resource>
      <resource path="/sendFeedback">
        <method name="PUT" id="sendFeedback">
          <request>
            <param xmlns:xs="http://www.w3.org/2001/XMLSchema" type="xs:string"
style="query" name="dataSetID"/>
            <param xmlns:xs="http://www.w3.org/2001/XMLSchema" type="xs:string"
style="query" name="feedback"/>
          </request>
        </method>
      </resource>
    </resource>
  </resources>
</application>
```

Appendix 4 – List of Missing or Anticipated Supporting Documentation, Functionality or Other Artifacts

Name	Supporting Document Functionality Artifact	Motivation
Lukas Engelthaler	A new document which in simple and not too technical terms explains the concept and requirements for implementing TN-ITS	Needed for decision makers to understand the purpose and rationale. Needed for developers to understand the skillset needed and to be able to estimate costs for development.
Lukas Engelthaler	Free and open source component for decoding the information (dataset-id, from-date,to-date), preferably written in a platform independent (portable) language with no dependencies (e.g. Python, Java)	When datasets are big it would be useful to be able to decode this information which is encoded using base64 in the link available in the dataset reference in the list of datasets from the rest interface.
Lukas Engelthaler	It should be possible to query the TN-ITS services also based on time rather than dataset-id.	Useful functionality
Lars Wikström	CEN TS for TN-ITS specification D3.1	A new and updated version of the D3.1 specification is being produced in the form of a CEN technical specification (CEN/TC278). That document should eventually replace the corresponding document which is used now. This should also cover the things that were not explained explicitly in the current documentation, e.g. OpenLR and Linear Referencing.
Lars Wikström	Generalization rules	A description which is close to the domain of the traffic engineer which explains how real world situations are encoded into TN-ITS data
Lars Wikström	OpenLR encoding and decoding software components	Components to encode a base 64 encoded binary string representation from a set of explicit parameters and vice versa as open source and portable code would reduce at least that hurdle for developers.

Table 8: List of Missing or Anticipated Supporting Documentation, Functionality or Other Activities