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Intelligente Verkehrssysteme – DATEX-II-Datenaustauschspezifikationen für Verkehrsmanagement und Verkehrsinformationen – Teil 8: Publikationen von Verkehrsmanagementmaßnahmen und kommunale Ergänzungen; Englische Fassung CEN/TS 16157-8:2020

Intelligent transport systems –
DATEX II data exchange specifications for traffic management and information –
Part 8: Traffic management publications and extensions dedicated to the urban environment;
English version CEN/TS 16157-8:2020

Systèmes de transport intelligents –
DATEX II Spécification des échanges de données pour la gestion du trafic et l'information routières –
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Nationales Vorwort

Dieses Dokument (CEN/TS 16157-8:2020) wurde vom Technischen Komitee CEN/TC 278 „Intelligente Verkehrssysteme“ ausgearbeitet, dessen Sekretariat von NEN (Niederlande) gehalten wird.

Das zuständige deutsche Normungsgremium ist der Gemeinschaftsarbeitsausschuss NA 052-02-71 GA „Gemeinschaftsarbeitsausschuss NAAutomobil/DKE: Intelligente Verkehrssysteme“ des DIN-Normenausschusses Automobiltechnik.

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Dieses Dokument enthält unter Berücksichtigung des DIN-Präsidialbeschlusses 1/2004 nur die Englische Fassung von CEN/TS 16157-8:2020.

Diese Technische Spezifikation legt eine gemeinsame Menge von Datenaustausch-Spezifikationen fest, um die Vision eines interoperablen Austauschs von Verkehrs- und Reiseinformationsdaten über Grenzen hinweg zu ermöglichen.

Diese Technische Spezifikation basiert weiterhin auf einem Weißbuch der Europäischen Kommission, welches die Koordination von Verkehrsmanagement und die Entwicklung von übergangslosen paneuropäischen Diensten festlegt.

Dieser Teil der Reihe liefert:

— Erweiterungen zu bestehenden DATEX-II-Publikationen, für die bessere Verwendung im städtischen Umfeld. Diese Erweiterungen sind als Niveau-B-Erweiterungen bezogen auf das DATEX-II-Modell festgelegt;

— eine Spezifikation zur Veröffentlichung von Umleitungsinformationen, um die entsprechende bestehende DATEX-II-Struktur zu erweitern;

— eine Spezifikation zur Veröffentlichung von Verkehrsmanagementplänen, welche das bestehende DATEX-II-Kernmodell erweitern, um Anwendungen im städtischen Umfeld besser zu unterstützen.

Erfahrungen mit dieser DIN SPEC sind erbeten:

— vorzugsweise als Datei per E-Mail an eric.wern@vda.de in Form einer Tabelle. Die Vorlage dieser Tabelle kann im Internet unter http://www.din.de/stellungnahme abgerufen werden;

— oder in Papierform an den Normenausschuss Automobiltechnik, Behrenstr. 35, 10117 Berlin.

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Nationaler Anhang NA
(informativ)

Begriffe

Die Benummerung der folgenden Begriffe und Abkürzungen ist identisch mit der Benummerung in der englischen Fassung.

3 Begriffe

Für die Anwendung dieses Dokuments gelten die Begriffe aus DIN EN 16157-1:2018, DIN EN 16157-2:2018, DIN EN 16157-3:2018 und DIN EN 16157-7:2018 und die folgenden Begriffe.

ISO und IEC stellen terminologische Datenbanken für die Verwendung in der Normung unter den folgenden Adressen bereit:

— IEC Electropedia: verfügbar unter http://www.electropedia.org/

— ISO Online Browsing Platform: verfügbar unter http://www.iso.org/obp

3.1
Verkehrsmanagementplan
(en: traffic management plan)
koordinierte Menge von Aktionen, welche von einigen Akteuren, wie Verkehrssteuerungszentralen, Dienstanbietern, Polizei, Behörden oder Straßenbetreibern implementiert werden mit dem Ziel, Verkehrsstörungen zu minimieren oder zu verhindern und den sicheren Betrieb des Straßennetzes sicherzustellen

3.2
Szenario
(en: scenario)
Gesamtsituation im Straßennetz, welche Straßenbetreiber dazu führt, einen Verkehrsmanagementplan zu starten und zu unterhalten

3.3
Strategie
(en: strategy)
Prinzipien, die eine Menge von Verkehrsmaßnahmen und -aktionen unterstützen, um die allgemeinen Zielsetzungen der Verkehrsmanagementgrundsätze zu erreichen

BEISPIEL Durchgangsverkehr in einem Gebiet begrenzen; ein bestimmtes Verkehrsmittel oder eine bevorzugte Route empfehlen.

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3.4
Maßnahme
(en: measure)
bestimmte Menge von Aktionen, um ein bestimmtes Ziel für ein gegebenes Szenario zu erreichen, welches zu einer bestimmten betrieblichen Konfiguration des Netzwerkes führt

BEISPIEL Schließungen mit alternativen Reiserouten; Beschränkungen für den Schwerlastverkehr, Zugriffssteuerung usw.

Anmerkung 1 zum Begriff: Dies kann eine einzelne Aktion, eine Menge von Aktionen am selben Standort (Straßenabschnitt) sein oder eine Menge von örtlich verteilten Aktionen sein, die gemeinsam ausgeführt werden. Dieses schließt allgemeine IT-Aktionen mit ein, wie z. B. Informationslieferung auf bestimmten Informationskanälen. Wenn die Lösung (= Maßnahme) nicht vordefiniert ist, kann eine Prozedur festgelegt werden, um diese Lösung auszuarbeiten.

3.5
Aktion
(en: action)
einzelne Betreiberaktion, welche Teil einer Maßnahme eines Verkehrsmanagementplans ist, und normalerweise eine „BetreiberAktion"-Implementierung von bestimmten Botschaften variabler Informationszeichen bei Datenlieferung über andere Verbreitungskanäle usw. ist

Anmerkung 1 zum Begriff: Diese kann vorbeugend, heilend oder geplant sein, z. B. zur Lieferung von Informationen an Straßennutzer; um Salz im Falle von Eisglätte auf eine Straße zu streuen; einen Straßenabschnitt von Hindernissen zu befreien.

3.6
Dienstanfrage
(en: service request)
Information, welche unter Akteuren zur Aufgabenkoordination ausgetauscht wird durch die Aktivierung und Implementierung von Verkehrsmanagementplänen, wie z. B. ein Übereinkommen zu vorgeschlagenen Strategien oder Maßnahmen, vereinbarten Maßnahmen/Strategieimplementierungsplänen, Beendigungs- und Abbruchanforderung zu vereinbarten Maßnahmen und Strategien

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TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

CEN/TS 16157-8

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English Version

Intelligent transport systems — DATEX II data exchange specifications for traffic management and information — Part 8: Traffic management publications and extensions dedicated to the urban environment

Systèmes de transport intelligents — DATEX II Spécification des échanges de données pour la gestion du trafic et l'information routières — Partie 8: Publications et extensions pour la gestion du trafic dédiées à l'environnement urbain

Intelligente Verkehrssysteme — DATEX-II-Datenaustauschspezifikationen für Verkehrsmanagement und Verkehrsinformationen — Teil 8: Publikationen von Verkehrsmanagementmaßnahmen und kommunale Ergänzungen

This Technical Specification (CEN/TS) was approved by CEN on 10 February 2020 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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European foreword

This document (CEN/TS 16157-8:2020) has been prepared by Technical Committee CEN/TC 278 “Intelligent transport systems”, the secretariat of which is held by NEN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

As a user of this document, attention is drawn to the resources of www.datex2.eu. This website contains related software tools and software resources that aid the implementation of EN 16157 DATEX II.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Introduction

This document defines a common set of data exchange specifications to support the vision of a seamless interoperable exchange of traffic and travel information across boundaries, including national, urban, interurban, road administrations, infrastructure providers and service providers.

Standardization in this context is a vital constituent to ensure that interoperability, reduction of risk, reduction of the cost base and promotion of open marketplace objectives are achieved that will lead to many social, economic and community benefits as a result of more informed travellers, network managers and transport operators.

With the aim to support sustainable mobility in Europe, the European Commission has been supporting the development of information exchange mainly between the actors of the road traffic management domain for a number of years. In the road sector, DATEX II has been long in fruition, with the European Commission being fundamental to its development through an initial contract and subsequent cofounding through the Euro-Regional projects, and well as support for Programme Support Action activities.

DATEX II is referenced within European regulations:

— EU Commission Delegated Regulation, (EU) 2015/962 of 18 December 2014 regarding the provision of EU-wide real-time traffic information services,

— EU Commission Delegated Regulation, (EU) 2013/885 of 15 May 2013 regarding the provision of information services for safe and secure parking places for trucks and commercial vehicles,

— EU Commission Delegated Regulation, (EU) 2013/886 of 15 May 2013 regarding data and procedures for the provision, where possible, of road safety-related minimum universal traffic information free of charge to users,

— EU Commission Delegated Regulation, (EU) 1926/2017 of 31 May 2017 regarding the provision of EU-wide multimodal travel information services.

This document includes the framework, context and specification for exchanges, the modelling approach, data content, data structure and relationships.

This document supports a methodology that is extensible.

This document, which is Part 8 for the CEN 16157 series, provides:

— extensions to existing DATEX II publications, to better support use within an urban context. The extensions are specified as Level B Extensions to the DATEX II model.

— a specification for the publication of rerouting information to enhance the corresponding existing DATEX II structure

— a specification for the publication of traffic management plans extending the existing DATEX II core model to better support application to the urban environment.

The specification for the publication of traffic management plans draws on work undertaken within the DATEX II Programme Support Action tasks, supported by the European Commission, and other related project work undertaken on these topics.

The present document was developed by project team PT1709 funded by the European Commission under grant agreement SA/CEN/GROW/EFTA/546/2016-10 'Urban ITS - Traffic Management Data Models and interfaces' (M/546 [2]).

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1 Scope

This document constitutes a Part of the CEN 16157 DATEX II series of standards and technical specifications. This series specifies and defines component facets supporting the exchange and shared use of data and information in the field of traffic and travel. The component facets include the framework and context for exchanges, the modelling approach, the data content, the data structure and relationships and the communications specification.

Part 8, this document, specifies additional data model structures that are applicable for traffic management applications in the urban environment. This Part addresses data concepts to support the exchange of traffic management plans, rerouting, extensions of the existing DATEX II core model to better support application to the urban environment.

It establishes specifications for data exchange between any two instances of the following actors:

— Traffic Information Centres (TICs),

— Traffic Control Centres (TCCs),

— Service Providers (SPs).

Use of this document may be applicable for use by other actors.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 16157-1:2018, *Intelligent transport systems - DATEX II data exchange specifications for traffic management and information - Part 1: Context and framework*

EN 16157-2:2018, *Intelligent transport systems — DATEX II data exchange specifications for traffic management and information — Part 2: Location Referencing*

EN 16157-3:2018, *Intelligent transport systems - DATEX II data exchange specifications for traffic management and information - Part 3: Situation Publication*

EN 16157-7:2018, *Intelligent transport systems - DATEX II data exchange specifications for traffic management and information - Part 7: Common data elements*

ISO/IEC 19505-1:2012, *Information technology — Object Management Group Unified Modeling Language (OMG UML) — Part 1: Infrastructure*

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3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16157-1:2018, EN 16157-2:2018, EN 16157-3:2018 and EN 16157-7:2018 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at http://www.iso.org/obp
- IEC Electropedia: available at http://www.electropedia.org/

3.1
traffic management plan
coordinated set of actions implemented by a number of actors such as traffic control centres, service providers, police, authorities, or road managers aiming to minimise or prevent traffic disruption and ensure efficient operation of the road network

3.2
scenario
an overall situation on the road network that leads road operators to initiate and run a traffic management plan

3.3
strategy
principles that underpin a set of traffic measures or actions in order to obtain the general objectives of the traffic management policy

EXAMPLE limit through traffic in an area; to favour a transport mode or a preferred route.

3.4
measure
specific set of actions to fulfil a specific goal, in a given scenario, which leads to a specific network operational configuration

EXAMPLE closures with alternative itinerary, restriction for HGV, access control etc.

Note 1 to entry: It can be an isolated action, a set of actions on the same site (road section) or a set of spatially spread actions that are executed jointly. This also includes general IT actions such as information delivery on specific delivery channels. When the solution (= measure) is not predefined one can define a procedure to elaborate this solution.

3.5
action
single operator action which is part of a traffic management plan measure, which is normally an "OperatorAction"-implementation of specific messages on variable message signs, by information delivery via other dissemination channels, etc

Note 1 to entry: It may be preventive, curative or planned, e.g.: to deliver information to road users; to spread salt on a road in case of danger of black ice; to clear a road section of obstacles.

3.6
service request
information which is exchanged among actors for workflow coordination in activating and implementing traffic management plans, such as an agreement on proposed strategies or measures, agreed measures / strategies implementation, termination and cancellation request of agreed measures and strategies

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4 Symbols and abbreviations

GUID	Globally Unique identifier
IT	Information technology
ITS	Intelligent Transport Systems
PIM	Platform Independent Model
TMP	Traffic Management Plan
UML	Unified Modelling Language
VMS	Variable Message Sign

5 Conformance

This document specifies the following namespace sub-models:

— “UrbanExtensions” within Clause 7

— “ReroutingManagementEnhanced” within Clause 8

— “TrafficManagementPlan” within Clause 9

All the sub-models take use of the “Level B” extension mechanism as defined in EN 16157-1:2018. Specification elements that relate to location information are specified in EN 16157-2:2018; common specification elements are specified in 16157-7:2018.

Conformance with this Part shall require platform independent models from which platform specific models are generated to comply with the UML modelling rules defined in EN 16157-1:2018 and with the following requirements of this sub-model which are expressed in this part:

— comply with all stipulated minimum and maximum multiplicity requirements for UML elements and relationships,

— comply with all definitions, types and ordering,

— employ optional elements as specified,

— comply with all expressed constraints.

It should be noted that conformance of a publication service with all the structural requirements stated above does not necessarily ensure that the informational content of that service will be semantically comprehensible.

6 UML notation

The UML notation used in this document is as described in ISO/IEC 19505. An explanation of the UML notation used in this document is provided in EN 16157 Part 1:2018.

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7 «D2Namespace» UrbanExtensions

7.1 Overview

This clause specifies an additional namespace "UrbanExtensions" which provides several extensions to different elements of the DATEX II data model defined in EN 16157 parts 2, 3 and 7 focussed on the urban aspects of the data model. These extensions shall follow the Level-B modelling rules defined in EN 16157-1:2018.

Figure 1 illustrates the "UrbanExtensions" namespace and its classes. This namespace shall be located inside the "Extension" namespace defined in EN 16157-7:2018.

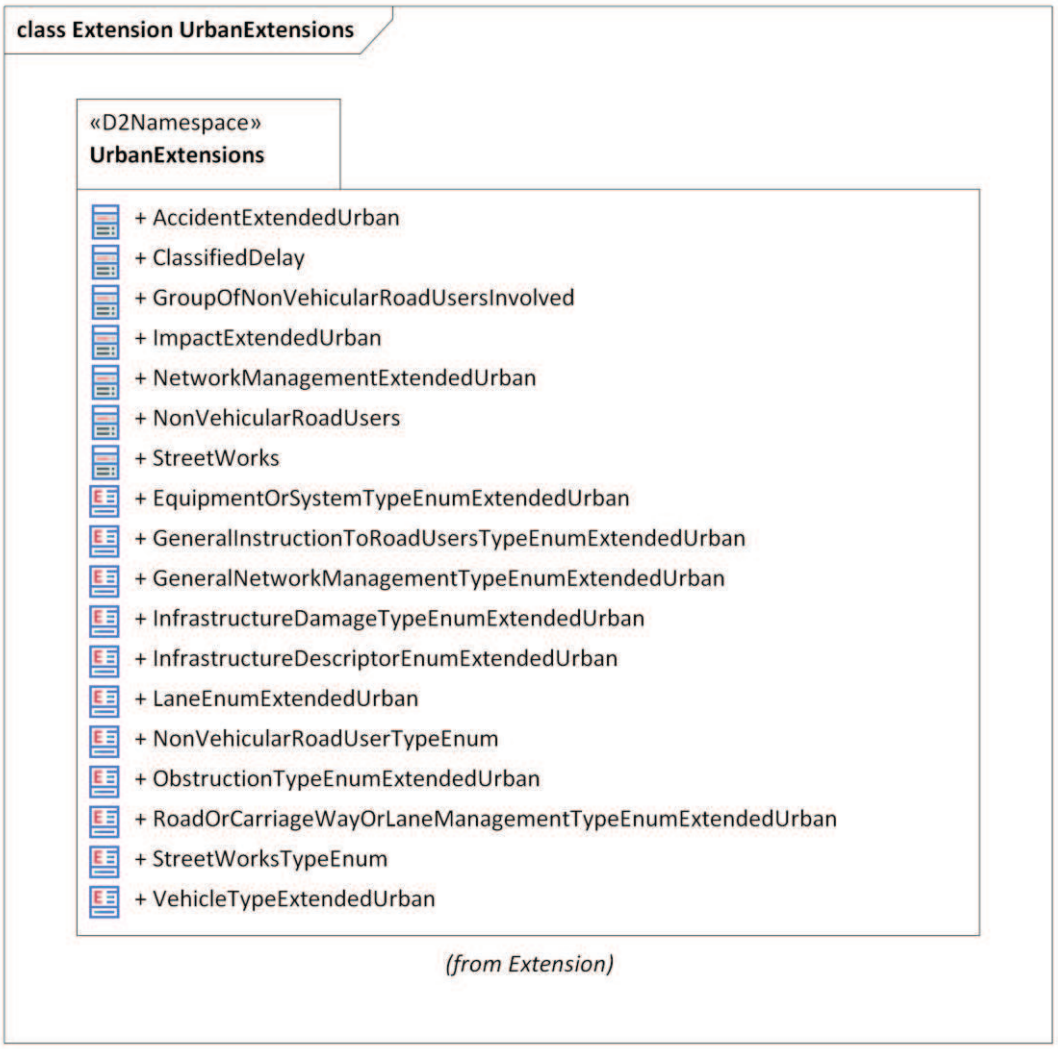

Figure 1 — The "UrbanExtensions" namespace

The «D2Namespace» UrbanExtensions shall have the namespace-prefix "ubx".

7.2 ClassifiedDelay Class

The "ClassifiedDelay" class (see Figure 2) may provide an alternative to the "Delay" class specified in EN 16157-3:2018. In contrast to this class, the "ClassifiedDelay" class shall have unbounded multiplicity and an aggregation to the "VehicleCharacteristics" class to specify delays classified for specific types of vehicles.

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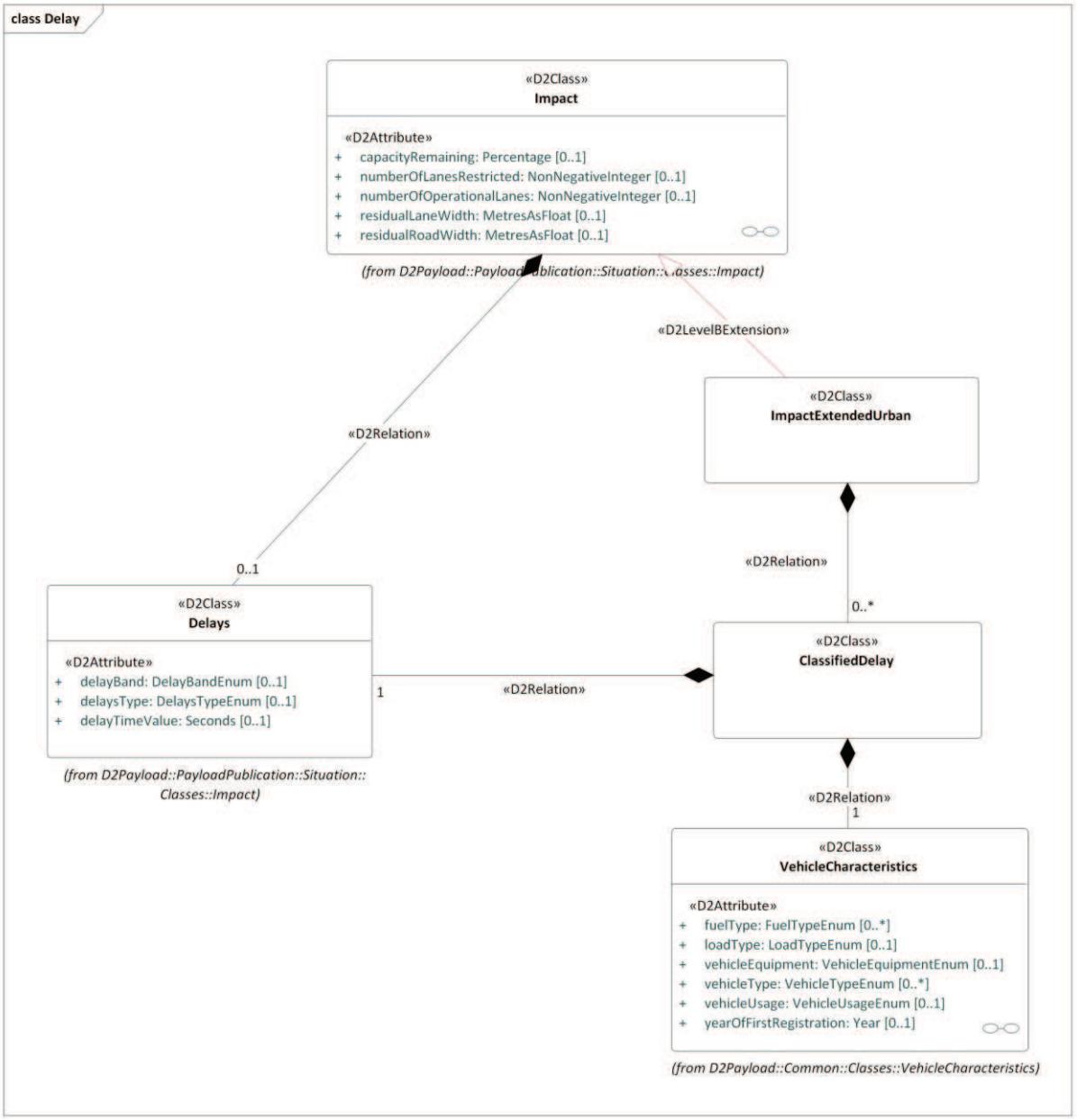

Figure 2 — Extension to Delay

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7.3 EquipmentOrSystemType Class

The “EquipmentOrSystemTypeEnum” enumeration defined in EN 16157-3:2018 shall be extended by the enumeration on access control systems, parking sensors and traffic sensors (see Figure 3).

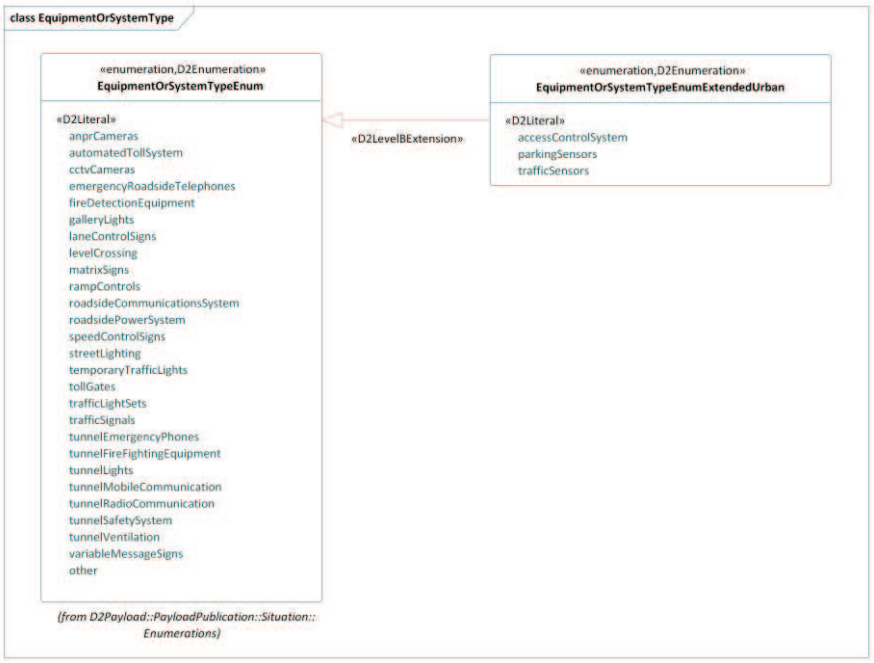

Figure 3 — Extension to equipment or system type

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7.4 GeneralInstructionsToRoadUsers Class

The "GeneralInstructionsToRoadUsersTypeEnum" enumeration defined in EN 16157-3:2018 shall be extended by two further enumerations with instructions for cyclists and pedestrians (see Figure 4).

Figure 4 — Extension to General instructions to road users

7.5 GeneralNetworkManagementType Class

The "GeneralNetworkManagementTypeEnum" enumeration defined in EN 16157-3:2018 shall be extended by three further enumerations literals for general management concerning restricted areas and tolling (see Figure 5).

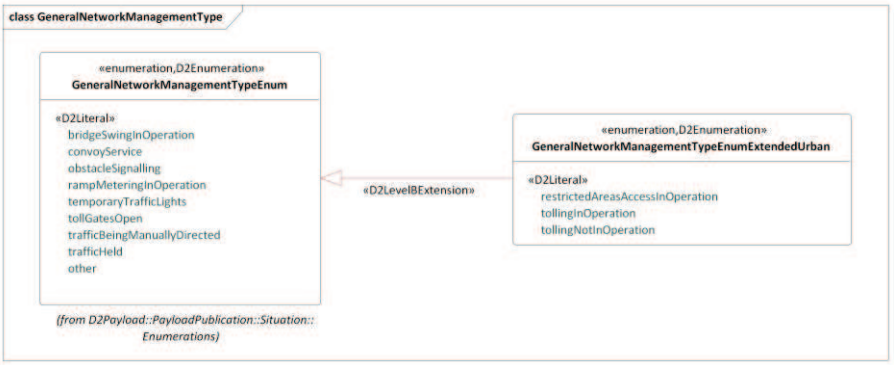

Figure 5 — Extension to general network management

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7.6 InfrastructureDamageType Class

The “InfrastructureDamageTypeEnum” enumeration defined in EN 16157-3:2018 shall be extended by a literal specifying a collapsed road surface (see Figure 6).

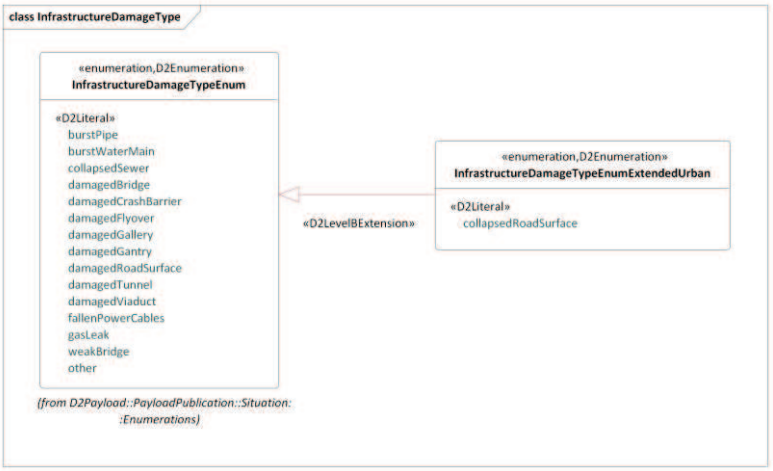

Figure 6 — Extension to infrastructure damage

7.7 InfrastructureDescriptor Class

The “InfrastructureDescriptorEnum” enumeration defined in EN 16157-2:2018 shall be extended by several literals specifying certain urban types of underpasses, bridges and crossings (see Figure 7).

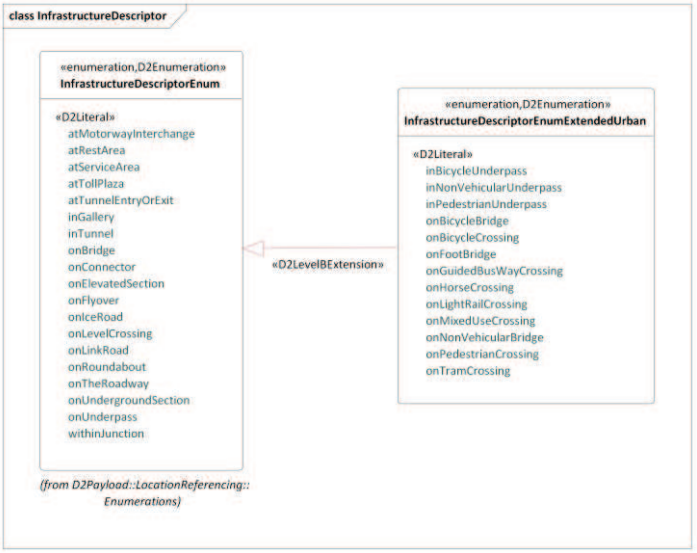

Figure 7 — Extension to infrastructure descriptor

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7.8 LaneEnum Class

The “LaneEnum” enumeration defined in EN 16157-2:2018 shall be extended by several literals, which are generally used in the urban environment (see Figure 8).

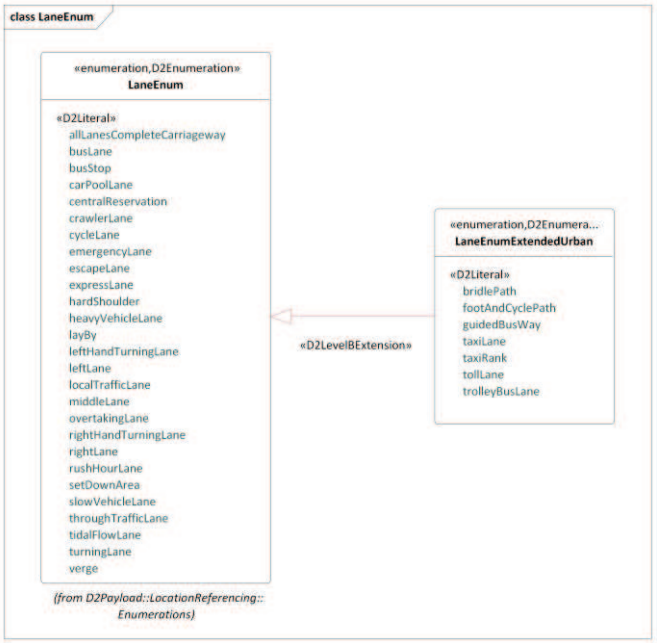

Figure 8 — Extension to lanes

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7.9 NonVehicularRoadUsers Classes

The "NonVehicularRoadUsersTypeEnum" enumeration shall specify road users that do not use a motorised vehicle. The "GroupOfNonVehicularRoadUsersInvolved" class shall extend the "Accident" class defined in EN 16157-3:2018. Together with the "NonVehicularRoadUser" class they build a class structure to identify information on the number and type of persons (or animals) involved in accidents that did not use a motorised vehicle (see Figure 9).

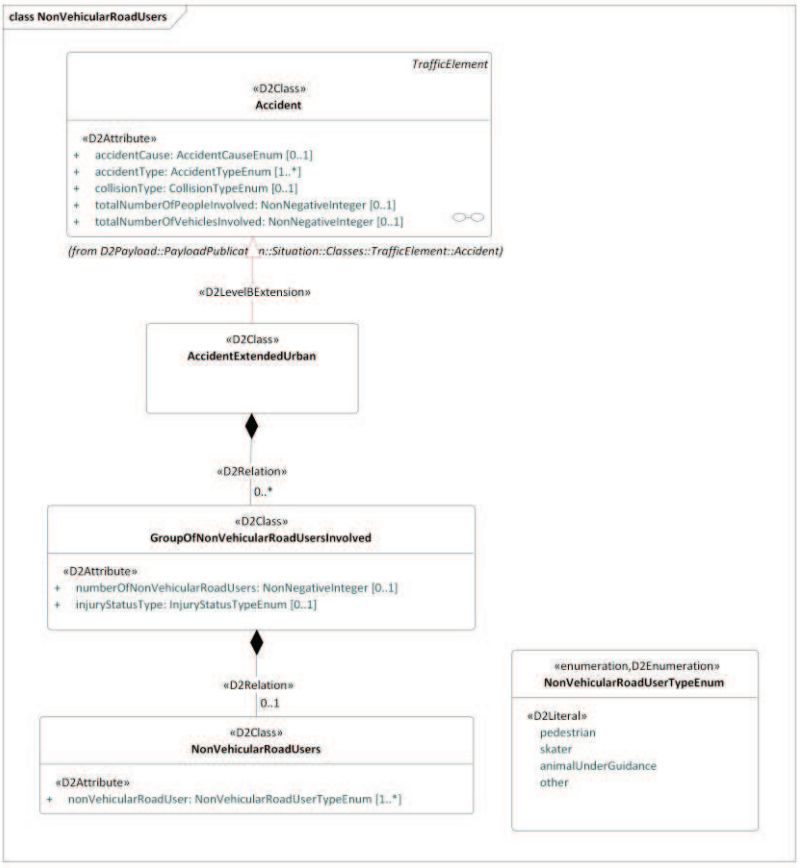

Figure 9 — Extension to accident for non-vehicular road users

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The “NonVehicularRoadUser” class shall also be aggregated to the “NetworkManagement” class defined in EN 16157-3:2018 to allow specifying network management measures for road users that do not use a motorised vehicle. This shall technically be done by the Level B extension mechanism (see Figure 10).

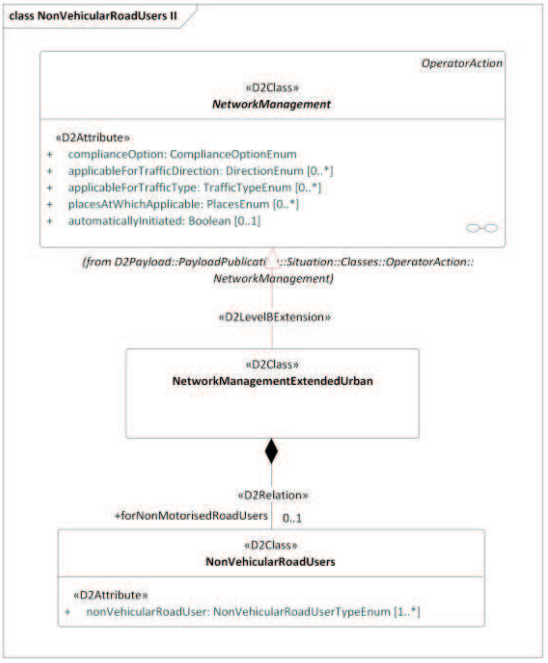

Figure 10 — Extension to network management for non-vehicular road users

7.10 ObstructionType Class

The “ObstructionTypeEnum” enumeration defined in EN 16157-3:2018 shall be extended by three literals concerning building work, police and firefighter operations (see Figure 11).

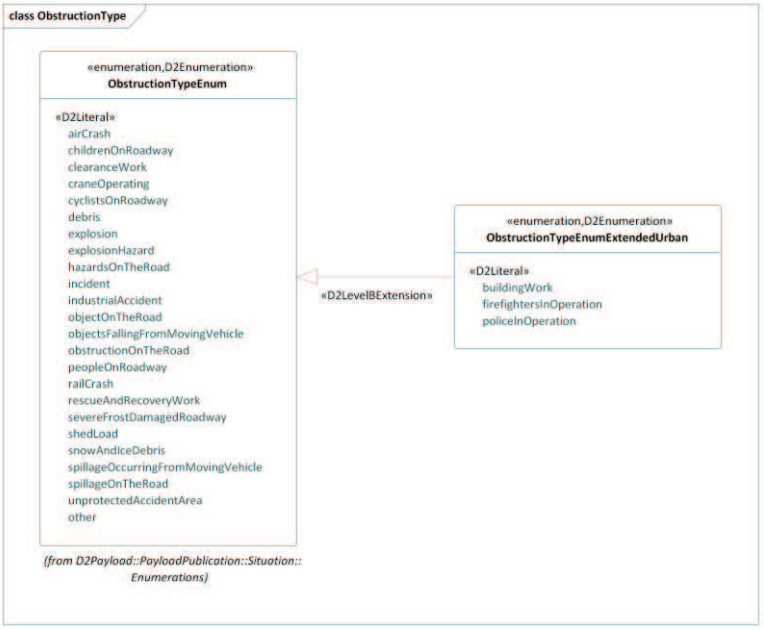

Figure 11 — Extension to obstruction type

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7.11 RoadOrCarriagewayOrLaneManagement Class

The "RoadOrCarriagewayOrLaneManagementTypeEnum" enumeration defined in EN 16157-3:2018 shall be extended by several urban-related literals (see Figure 12).

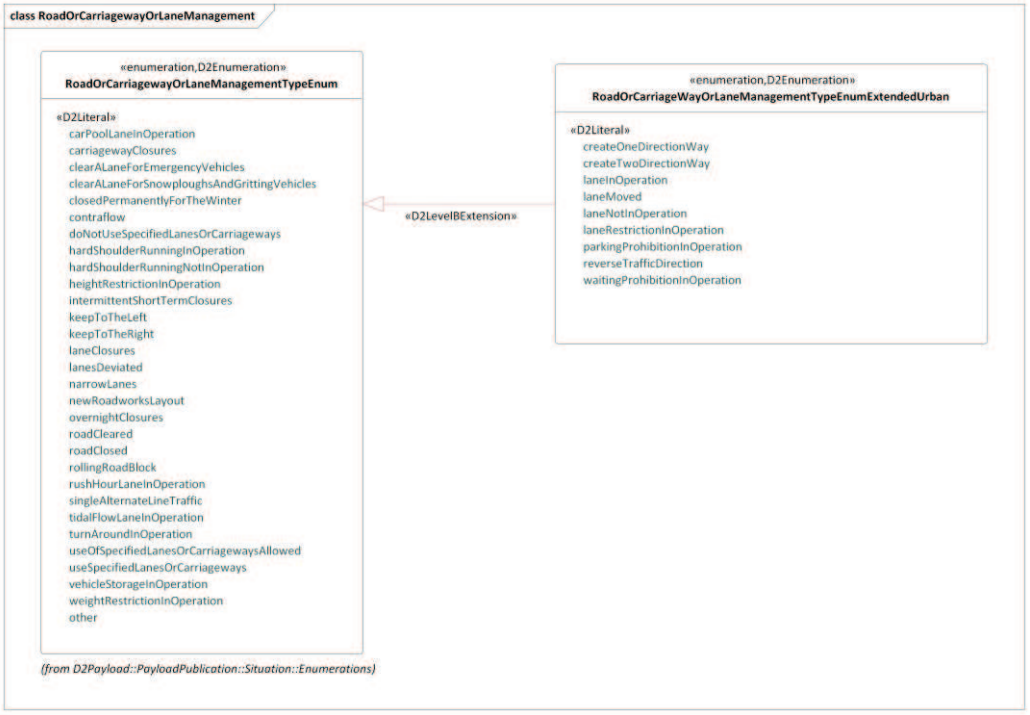

Figure 12 — Extension to road or carriageway or lane management

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7.12 StreetWorks Class

The “StreetWorks” class shall be an extension of the “Roadworks” class defined in EN 16157-3:2018 and form a third alternative in contrast to roadworks of type maintenance or construction. Its corresponding types for urban street works shall be defined in the “StreetWorksTypeEnum” enumeration (see Figure 14).

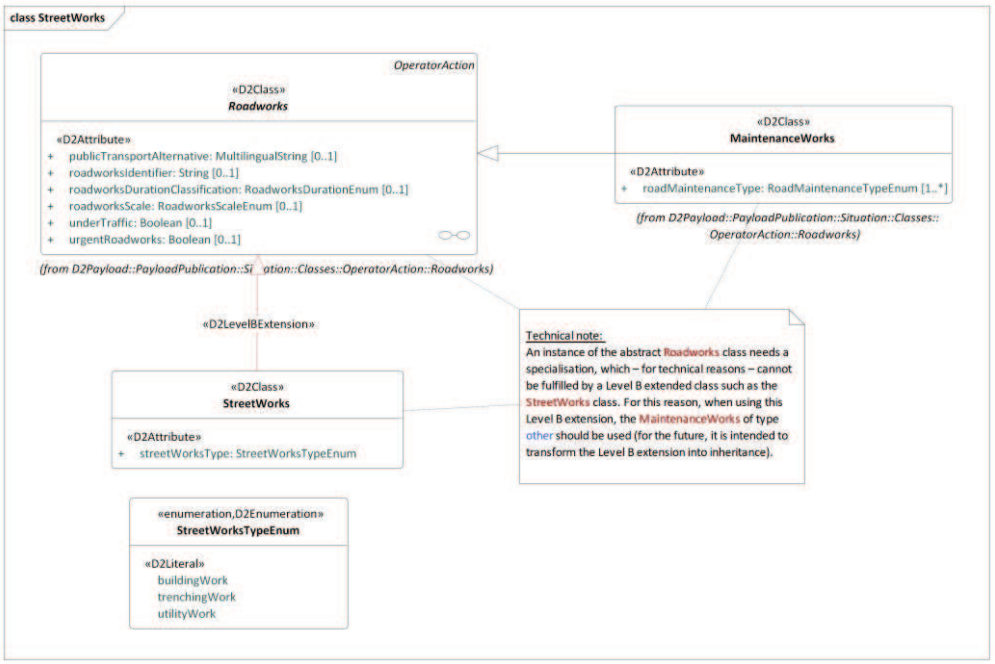

Figure 13 — Extension for street works

An instance of the abstract “Roadworks” class needs a specialization, which – for technical reasons – cannot be fulfilled by a Level B extended class such as the “StreetWorks” class. For this reason, when using this Level B extension, the “MaintenanceWorks” of type “other” should be used (for the future, it is intended to transform the Level B extension into inheritance).

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7.13 VehicleType Class

The “VehicleTypeEnum” enumeration defined in EN 16157-7:2018 shall be extended by literals for e-bikes, e-motorscooters and personal light electric vehicles (see Figure 14).

Figure 14 — Extension to vehicle types

8 «D2Namespace» ReroutingManagementEnhanced

8.1 Overview

This clause specifies an extension to the DATEX II data model that shall follow the modelling rules defined in EN 16157-1:2018 and specifies an additional namespace “ReroutingManagementEnhanced” which provides an improved alternative to the existing class model “ReroutingManagement”, defined in EN 16157-3:2018.

The «D2Namespace» ReroutingManagementEnhanced shall have the namespace-prefix “rer”.

Figure 15 illustrates the ReroutingManagementEnhanced namespace and their classes. This namespace shall be located inside the “Extension” namespace defined in EN 16157-7:2018.

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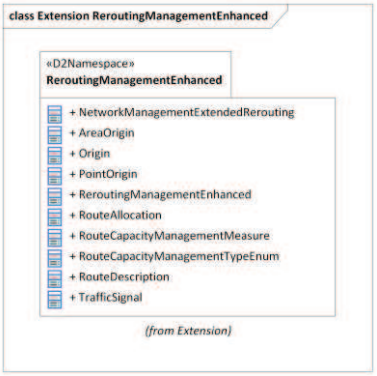

Figure 15 — The ” ReroutingManagementEnhanced” namespace

It contains classes and attributes for information related to rerouting, alternative routes and route capacity measures. Routing origins and destinations may be defined to specify the geographic area, for which the rerouting management should apply. Routes may be allocated by proportions, also in combination with certain types of vehicles for which they are valid or not valid.

The “ReroutingManagementEnhanced” class shall extend the “NetworkManagement” class (defined in EN 16157-3:2018) by using the Level B extension rules defined in Clause 8 of EN 16157-1:2018. Due to this construction, this class model shall be part of a Level B Extension within the SituationPublication model (as defined in EN 16157-3:2018). Further new classes defined in this document are “Origin”, “PointOrigin”, “AreaOrigin”, “RouteDescription”, “RouteAllocation”, “RouteCapacityManagementMeasure” and “TrafficSignal” (see Figure 16, Figure 17 and Figure 18). Several other classes already defined in EN 16157:2018 parts 2, 3 or 7 are used.

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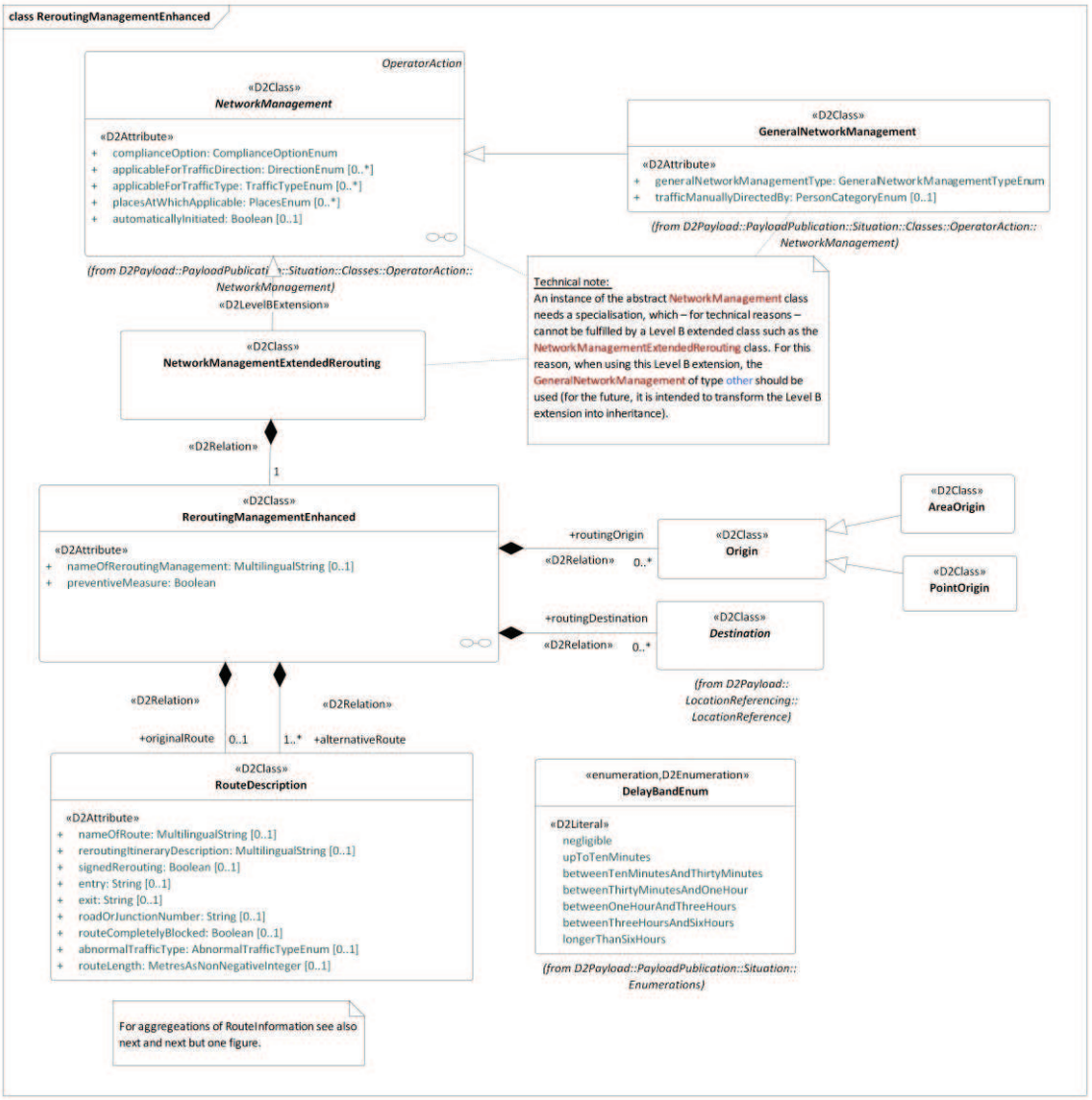

Figure 16 — The "ReroutingManagementEnhanced" class model

An instance of the abstract "NetworkManagement" class needs a specialization, which – for technical reasons – cannot be fulfilled by a Level B extended class such as the "NetworkManagementExtendedRerouting" class. For this reason, when using this Level B extension, the "GeneralNetworkManagement" of type "other" should be used (for the future, it is intended to transform the Level B extension into inheritance).

8.2 Semantics – Rerouting management and route description

For the rerouting management enhanced, a name (nameOfReroutingManagement) may be specified. It shall be specified, whether the measure is advisory (it is a recommendation, and is not a requirement to be followed) or mandatory (following a binding regulation or decision). A Situation or a SituationRecord, related to the specific rerouting measure (for example information on roadworks) may be referenced (see EN 16157-3:2018 clause 7.3.2.4).

With the "Origin" and "Destination" classes aggregated to the "ReroutingManagementEnhanced" class, geographic areas or points may be defined that may serve as an indication for the geographical relevance of the rerouting management. For example, navigation systems may use this information as triggers, if the route management is relevant on the specific vehicle route.

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One or more “RouteDescription” classes shall be aggregated to the “ReroutingManagementEnhanced” class. One of them may use the aggregation end “originalRoute”, i.e. being the route that is obstructed or closed or in a critical state in terms of traffic conditions. The others shall use the aggregation end “alternativeRoute” each specifying an alternative possibility for the trip from origin to destination.

For each route, a name and a description may be specified, as well as information about entries, exits and the road or junction number. The traffic status may be specified as well as the current travel time on the route, by using the class “TravelTimeData” specified in EN 16157-5:2018.

The georeferenced location of each route shall be specified by using the “Itinerary” class specified in EN 16157-2:2018. Supplementary positional description may be specified.

8.3 Semantics – Route allocation

Figure 17 shows the “RouteAllocation” class model.

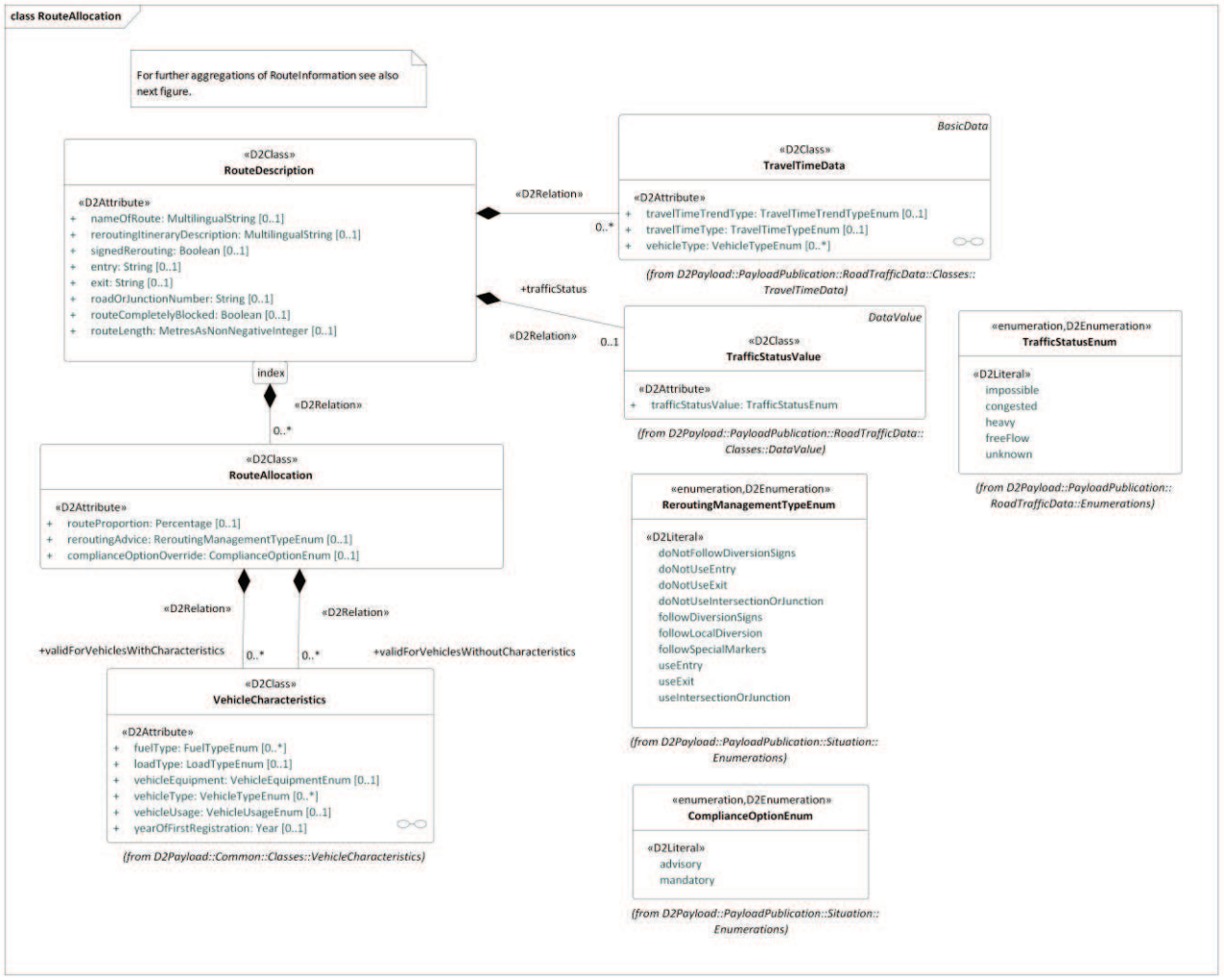

Figure 17 — The “RouteAllocation” class model

The “RouteAllocation” class may be used to define proportions of traffic for routes meeting the same overall functional routing requirement. This may include the original route. The corresponding attribute “routeProportion” specifies the weight of this specific route against other alternative routes that perform the same functional purpose. The sum of all possible route weights for a specified set of vehicle characteristics shall be equal to one (100 %).

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8.4 Semantics – Route capacity management

Figure 18 shows the "RouteCapacityManagementMeasure" class model.

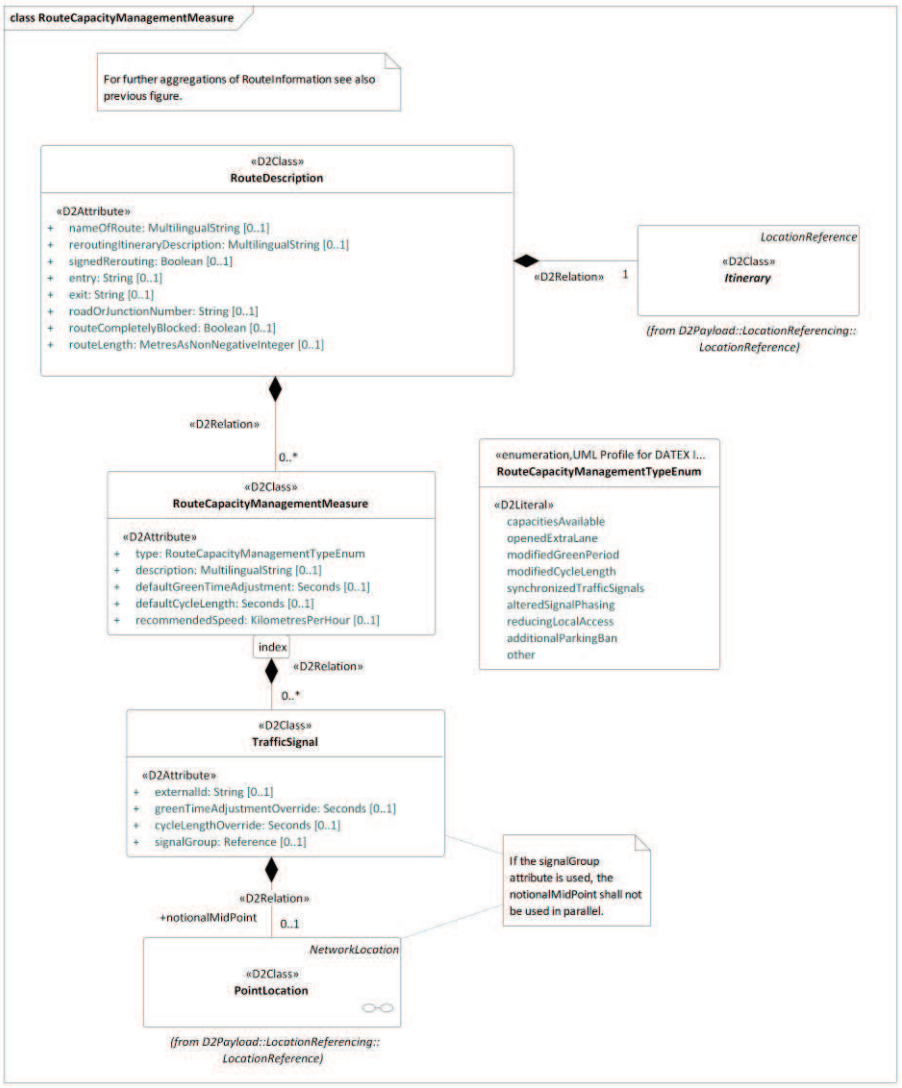

Figure 18 — The "RouteCapacityManagementMeasure" class model

Additional capacity measures on a route may be specified by using the "RouteCapacityManagementMeasure" class. Examples are extra lanes, modified traffic signal green stages or altered signal phasing. For measures referring to traffic signals, a series of "TrafficSignal" classes may be specified. With the attribute "signalGroup", each traffic signal may refer to its "SignalHeadLocation" specified in the "MapDataPublication" in FprCEN/TS 16157-9. Another possibility is to specify the notional reference point of the traffic signal. The notional reference point for the traffic signal represents the position of the midpoint of the related stop line. In the case of a non-signalised intersection the notional reference point represents the midpoint of the related stop line.

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9 «D2Namespace» TrafficManagementPlan

9.1 Overview

The «D2Namespace» TrafficManagementPlan shall have the namespace-prefix “tmp”.

The “TrafficManagementPlan” namespace contains classes and attributes for information related to two publications that support the definition and activation of traffic management plans in the urban environment. The two publications are:

— TmplanTablePublication which provides the details of proposed traffic management plans, including the scenario for which they are applicable, and the definition of measures and actions that shall be taken as part of the traffic management plan;

— TmplanOperationPublication which provides status information and status change information relating to elements of a traffic management plan. The TmplanOperationPublication may relate to a previously defined traffic management plan with reference to a traffic management plan within the TmplanTablePublication, or a traffic management plan that has not previously been defined.

The two publications in the “TrafficManagementPlan” namespace shall extend the DATEX II data model as Level B extensions of the GenericPublication class (defined in EN 16157-7:2018) by using the Level B extension rules defined in Clause 8 of EN 16157-1:2018. Several new classes are defined in this document. Where classes which have been previously defined are used, they are indicated in the class diagrams contained in Figures 19, 20, 21 and 22. These reused classes are already defined in EN 16157 parts 2, 3 or 7.

The publications of the “TrafficManagementPlan” namespace seek to facilitate the exchange of information between traffic control centres supporting workflow management to establish pre-defined traffic management plans including measures and actions to address foreseen scenarios, and then in real-time manage the activation, termination and other lifecycle processes related to traffic management plans. Typically, traffic management plans may encompass agreed actions such as an Operator Action (see EN 16157-3:2018), traffic information distribution, or road device management, such as variable message sign settings, with the objective of managing traffic patterns, optimizing network traffic flow, alleviation of congestion, etc. During the real-time management of traffic management plans the plans in use can be pre-defined (with necessary collaborative agreement if needed) or by means of ad hoc plans.

Figure 19 illustrates the “TrafficManagementPlan” namespace and its constituent packages and classes. This namespace shall be located inside the “Extension” namespace defined in EN 16157-7:2018.

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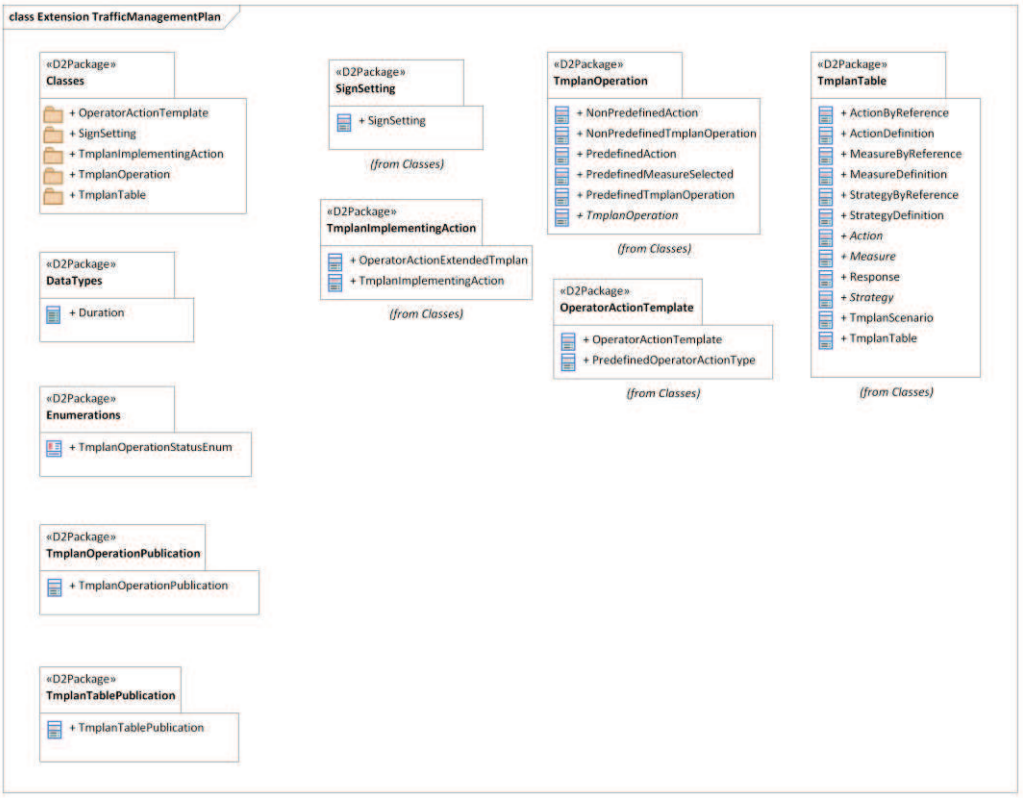

Figure 19 — «D2Namespace» TrafficManagementPlan

9.2 «D2Package» TmplanTablePublication

9.2.1 Overview

The TmplanTablePublication comprises classes and relationships required to model the static data needed to pre-define the scenario, measures and actions needed for agreement, if required, and potential future implementation of a set of traffic management plans.

Figure 20 illustrates the “TmplanTablePublication” package and its classes.

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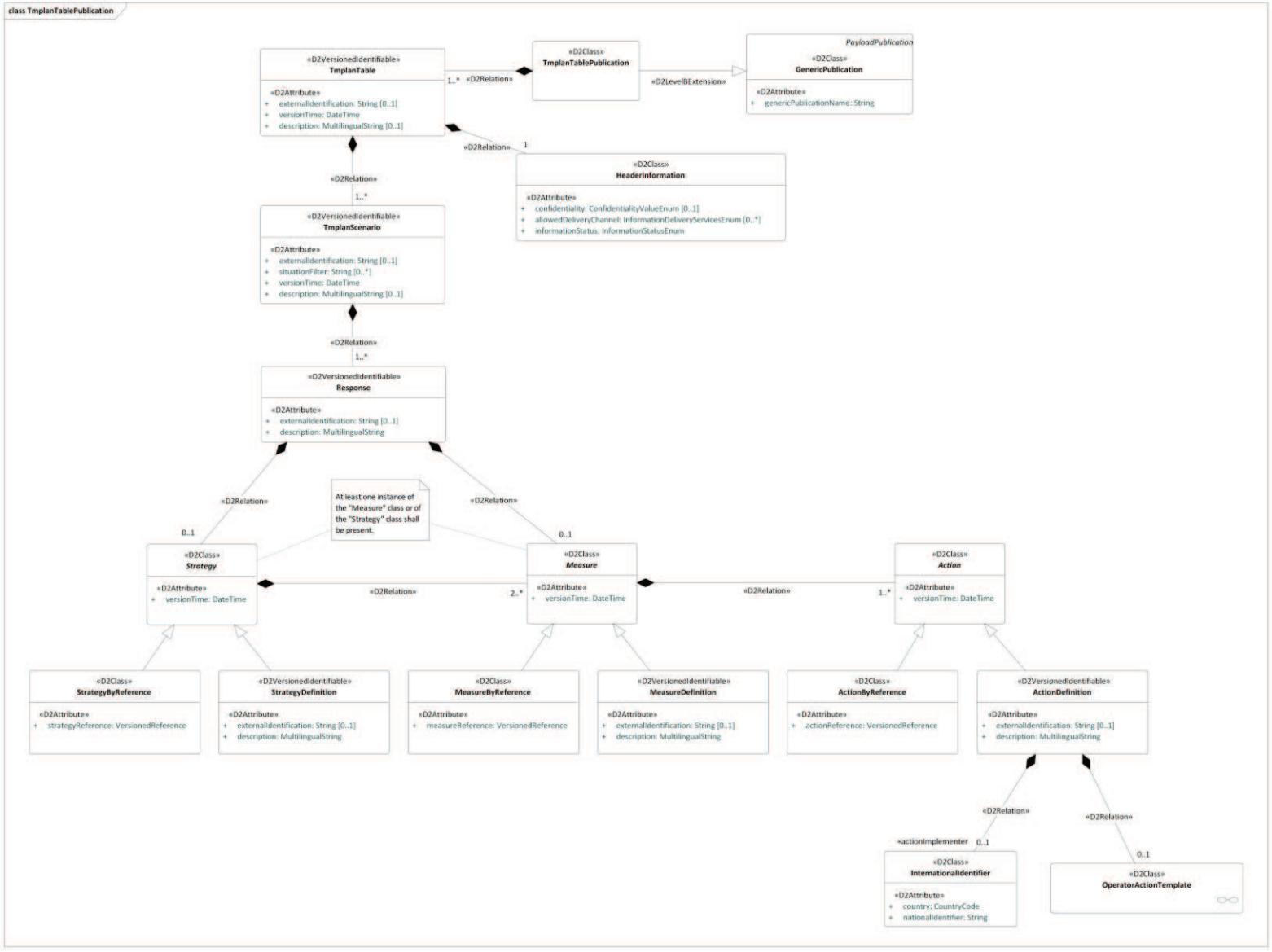

Figure 20 — The "TmplanTablePublication" class model

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