



**ŘEDITELSTVÍ SILNIC A DÁLNIC ČR**

**NDIC - DATEX II Situation Publication -  
Weather**  
*Release 1.0.0*

**Národní dopravní informační centrum (NDIC)**

2017-08-12

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**Publication** DATEX II v2.3/SituationPublication

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**Publisher** NDIC

**Author** Jan Vlčinský

The document describes a data format used for publishing weather related information impacting the drivers.

This document shall serve consumer to allow evaluation of format suitability and for possible implementation of importing data from received XML files into own information system.

Here you can find:

- conceptual description of published information
- information about location referencing methods used
- W3C XML schema of the format
- data sample(s)

Following topics are out of scope of this document and if present, shall be considered as informative only:

- transfer protocol incl. access point, life cycle etc.
- related data formats
- typical data origin
- typical data use

## 1.1 General terms

Following terms are used in this document:

**format** description of data structure for transferring some kind of information

**protocol** description of data transfer process and rules

**NDIC** national traffic information centre

**DATEX II model** class model for describing information related to the road traffic. The model in form of UML is platform independent.

One of specific platforms for expressing the model is XML.

The model is extensive (it consists of few thousands of structural items representing term incl. definition) For reference data (UML class model in form of Enterprise Architect EAP file, XML schema etc.) see [*d2ref*]. For additional information see [*d2supp*].

**(DATEX II) profile** simplified class model, still sufficient for specific needs. Profile is created from model by selecting only specific parts.

**(DATEX II) extension** extended DATEX II model, adding data structures missing in standard model but needed for specific needs.

**B level extension** Extension of DATEX II model, which is backward compatible with the original DATEX II model, even though it contains additional structures. [16157-1]

**C level extension** Extension of DATEX II model, which is not backward compatible with the original DATEX II model.

**publication** an element of DATEX II model, serving as an envelope for transmitted content of certain kind. Every sent DATEX II message contains exactly one element of publication type. There are various types of publications, for example *SituationPublication* [16157-3], *ElaboratedDataPublication* [16157-5], *Pre-definedLocationsPublication* [16157-3] etc.

**(W3C) XML schema** language, which allows definition of rules for a XML document structure.

**XSD** XML document containing XML schema. Sometimes it is synonym for XML schema itself.

**uri** uniform resource identifier, text, used as unique identifier. In this document, every format has it's own uri.

Described format allows publishing weather related information impacting driving conditions for a set of pre-defined locations.

## 2.1 Publication type SituationPublication

Format is based on DATEX II publication of type *SituationPublication* [16157-3]. Profile uses only small subset of possible structures.

```

1 <?xml version="1.0" encoding="utf-8"?>
2 <d2LogicalModel modelBaseVersion="2" xmlns="http://datex2.eu/schema/2/2_0"
3 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
4 xsi:schemaLocation="http://datex2.eu/schema/2/2_0 ../schema/schema.xsd">
5   <exchange>
6     <supplierIdentification>
7       <country>CZ</country>
8       <nationalIdentifier>NDIC</nationalIdentifier>
9     </supplierIdentification>
10  </exchange>
11  <payloadPublication lang="cs" xsi:type="SituationPublication">
12    <publicationTime>2017-07-15T04:27:59+02:00</publicationTime>
13    <publicationCreator>
14      <country>CZ</country>
15      <nationalIdentifier>NDIC</nationalIdentifier>
16    </publicationCreator>

```

## 2.2 Event description (only TrafficElement/Conditions)

*SituationPublication* requires description by means of class *Situation*, which aggregates instances of class *SituationRecord*, namely descendants of class *Conditions*. Besides the *SituationRecord* it contains elements with information about service availability.

Element *situation* describes a particular event, more particular events means more *situation* elements. Each *situation* element may contain one or more individual sub-messages, elements *situationRecord*. Since the situation described may evolve over time, the element is versioned and has unique identifier.

The *situationRecord* element may, in the element *situation*, occur several times (mostly information related to one event comprising of the situation). The *situationRecord* element can evolve over time, so the element is versioned and has unique identifier, mostly derived from the situation identifier.

```

17 <situation id="MeteoService15.1" version="5">
18   <situationVersionTime>
19     2017-07-15T04:27:21+02:00</situationVersionTime>
20   <headerInformation>
21     <confidentiality>noRestriction</confidentiality>
22     <informationStatus>real</informationStatus>
23     <urgency>normalUrgency</urgency>
24   </headerInformation>
25   <situationRecord id="MeteoService15.1_PoorEnvironmentConditions"
26     version="5" xsi:type="PoorEnvironmentConditions">
27     <situationRecordCreationTime>
28       2017-07-15T04:25:59+02:00</situationRecordCreationTime>
29     <situationRecordVersionTime>
30       2017-07-15T04:27:21+02:00</situationRecordVersionTime>
31     <probabilityOfOccurrence>certain</probabilityOfOccurrence>
32     <source>
33       <sourceIdentification>ITSMTNDIC</sourceIdentification>
34       <sourceName>
35         <values>
36           <value lang="cs">Správci meteohlásek DI</value>
37         </values>
38       </sourceName>
39     </source>
40     <validity>
41       <validityStatus>definedByValidityTimeSpec</validityStatus>
42       <validityTimeSpecification>
43         <overallStartTime>2017-07-15T04:26:50+02:00</overallStartTime>
44         <overallEndTime>2017-07-15T04:46:50+02:00</overallEndTime>
45       </validityTimeSpecification>
46     </validity>
47     <generalPublicComment>
48       <comment>
49         <values>
50           <value lang="cs">Hustá mlha, viditelnost menší než 30 m,
51             Vysocanská</value>
52         </values>
53       </comment>
54     </generalPublicComment>
55     <groupOfLocations xsi:type="LocationByReference">
56       <predefinedLocationReference id="73D74C70-BFA8-408F-86CD-49B3689D9F5D"
57         targetClass="PredefinedLocation" version="1" />
58     </groupOfLocations>
59     <poorEnvironmentType>denseFog</poorEnvironmentType>
60     <visibility>
61       <minimumVisibilityDistance>
62         <integerMetreDistance>30</integerMetreDistance>
63       </minimumVisibilityDistance>
64     </visibility>
65   </situationRecord>

```

## 2.3 Location description (by predefined locations)

The position can be described by a point or a short linear section on the road network, given by the presence of a weather station. Since the position of the weather sensing sensors does not change, the location in this profile is described by a reference (id) to a predefined location set defined in different document. The reference points to a class instance *PredefinedLocation* from package *PredefinedLocationsPublication*. Therefore, the location is not

described directly in the file.

```
55 <groupOfLocations xsi:type="LocationByReference">  
56 <predefinedLocationReference id="73D74C70-BFA8-408F-86CD-49B3689D9F5D"  
57 targetClass="PredefinedLocation" version="1" />  
58 </groupOfLocations>
```



---

## Time validity

---

Time validity is stated independently for every single event (*SituationRecord*) described in a situation and is defined by a time interval between two time instants. The class *Validity* uses exclusively an instance of class *OverallPeriod* in the role of *validityTimeSpecification* and elements *overallStartTime* and *overallStopTime* to define start and end of the interval.

Apart from methods mentioned above, no other methods for time validity specification are allowed (e.g. hours of validity or days of validity).

```
40 <validity>
41   <validityStatus>definedByValidityTimeSpec</validityStatus>
42   <validityTimeSpecification>
43     <overallStartTime>2017-07-15T04:26:50+02:00</overallStartTime>
44     <overallEndTime>2017-07-15T04:46:50+02:00</overallEndTime>
45   </validityTimeSpecification>
46 </validity>
```

## CHAPTER 4

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### Location referencing

---

The format describes routes exclusively by a reference to set of predefined locations (class *PredefinedLocation*) in publication *PredefinedLocationsPublication* [16157-3].

Location referencing methods are out of scope of this document and are described elsewhere.

## Appendix A: Message examples

## 5.1 visibility.xml

Publication contains exactly one message about dense fog and visibility of 30 meters.

```
<?xml version="1.0" encoding="utf-8"?>
<d2LogicalModel modelBaseVersion="2" xmlns="http://datex2.eu/schema/2/2_0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://datex2.eu/schema/2/2_0 ../schema/schema.xsd">
  <exchange>
    <supplierIdentification>
      <country>cz</country>
      <nationalIdentifier>NDIC</nationalIdentifier>
    </supplierIdentification>
  </exchange>
  <payloadPublication lang="cs" xsi:type="SituationPublication">
    <publicationTime>2017-07-15T04:27:59+02:00</publicationTime>
    <publicationCreator>
      <country>cz</country>
      <nationalIdentifier>NDIC</nationalIdentifier>
    </publicationCreator>
    <situation id="MeteoService15.1" version="5">
      <situationVersionTime>
        2017-07-15T04:27:21+02:00</situationVersionTime>
      <headerInformation>
        <confidentiality>noRestriction</confidentiality>
        <informationStatus>real</informationStatus>
        <urgency>normalUrgency</urgency>
      </headerInformation>
      <situationRecord id="MeteoService15.1_PoorEnvironmentConditions"
        version="5" xsi:type="PoorEnvironmentConditions">
        <situationRecordCreationTime>
          2017-07-15T04:25:59+02:00</situationRecordCreationTime>
        <situationRecordVersionTime>
          2017-07-15T04:27:21+02:00</situationRecordVersionTime>
        <probabilityOfOccurrence>certain</probabilityOfOccurrence>
        <source>
          <sourceIdentification>ITSMTNDIC</sourceIdentification>
          <sourceName>
```

```

    <values>
      <value lang="cs">Správci meteohlásek DI</value>
    </values>
  </sourceName>
</source>
<validity>
  <validityStatus>definedByValidityTimeSpec</validityStatus>
  <validityTimeSpecification>
    <overallStartTime>2017-07-15T04:26:50+02:00</overallStartTime>
    <overallEndTime>2017-07-15T04:46:50+02:00</overallEndTime>
  </validityTimeSpecification>
</validity>
<generalPublicComment>
  <comment>
    <values>
      <value lang="cs">Hustá mlha, viditelnost menší než 30 m,
        Vysocanská</value>
    </values>
  </comment>
</generalPublicComment>
<groupOfLocations xsi:type="LocationByReference">
  <predefinedLocationReference id="73D74C70-BFA8-408F-86CD-49B3689D9F5D"
    targetClass="PredefinedLocation" version="1" />
</groupOfLocations>
<poorEnvironmentType>denseFog</poorEnvironmentType>
<visibility>
  <minimumVisibilityDistance>
    <integerMetreDistance>30</integerMetreDistance>
  </minimumVisibilityDistance>
</visibility>
</situationRecord>
</situation>
</payloadPublication>
</d2LogicalModel>

```

### 5.1.1 Root element and publication envelope

Root element *d2LogicalModel* declares, that this message is using DATEX II.

Element *exchange* contains provider identifier.

Element *payloadPublication* is an envelope for actual information payload containing general information and one or more elements *situation*, (in our case there is one).

Attribute *xsi:type="SituationPublication"* in element *payloadPublication* determines, that this envelope is of type Situation publication.

Element *publicationTime* states publication time of this publication (file) as a whole.

Element *publicationCreator* identifies creator of the publication.

### 5.1.2 Description of one specific situation

Element *situation* describes a particular event, more particular events means more *situation* elements. Each *situation* element may contain one or more individual sub-messages, elements *situationRecord*. In this case occurs in the element *situation* just once.

Element *situationVersionTime* sets the time of the publication of this version of the situation.

Element *situationVersionTime* describes how to handle the information described.

### Event description (what happened)

The attribute *xsi:type="PoorEnvironmentConditions"* of element *situationRecord* defines the event type. In DATEX II model [d2ref] it can be verified, that given attribute is descendant of a class *Conditions*.

From this class, elements *poorEnvironmentType* are used with value of *denseFog*. Element *minimumVisibilityDistance* specifies visibility being 30 meters.

### Time validity

Estimated time validity is given in a structure *validity* by values of validity interval start *overallStartTime* and validity interval end *overallEndTime*.

### Event location

Event location is determined by reference to a set of predefined locations. To look up given location, it is necessary to obtain publication *PredefinedLocationsPublication*, related to this source of information and inside find location of identical type (by *targetClass*, here *PredefinedLocation*), with the same identifier and version.

The location for which the weather related event is valid is specified by the *pertinentLocation* element. It always has *xsi:type="LocationByReference"* and includes element *predefinedLocationReference* with the attribute *targetClass="PredefinedLocation"*.

The attribute *id="73D74C70-BFA8-408F-86CD-49B3689D9F5D"* refers to a predefined location with a given identifier, and the attribute *version='0'* specifies the version of the location description.

### Additional content

The document states time of its first version in *situationRecordCreationTime* and time of current version in *situationRecordVersionTime* for each *situationRecord*.

Element *source* lists the the creator of this information, who is responsible for its accuracy.

Element *generalPublicComment* contains a general description of the situation, mostly only in Czech language. This is a free text description as provided by the situation creator.

---

## Appendix B: W3C XML Schema

---

XML structure of a transmitted message is defined by following W3C XML schema:

### 6.1 *schema.xsd*

```
<?xml version="1.0" encoding="utf-8" standalone="no"?>
<xs:schema elementFormDefault="qualified"
attributeFormDefault="unqualified"
xmlns:D2LogicalModel="http://datex2.eu/schema/2/2_0" version="2.3"
targetNamespace="http://datex2.eu/schema/2/2_0"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType name="_ExtensionType">
    <xs:sequence>
      <xs:any namespace="##any" processContents="lax" minOccurs="0"
maxOccurs="unbounded" />
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="_PredefinedLocationVersionedReference">
    <xs:complexContent>
      <xs:extension base="D2LogicalModel:VersionedReference">
        <xs:attribute name="targetClass" use="required"
fixed="PredefinedLocation" />
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:simpleType name="AngleInDegrees">
    <xs:restriction base="D2LogicalModel:NonNegativeInteger" />
  </xs:simpleType>
  <xs:complexType name="ApplicationRateValue">
    <xs:complexContent>
      <xs:extension base="D2LogicalModel:DataValue">
        <xs:sequence>
          <xs:element name="applicationRate"
type="D2LogicalModel:IntensityKilogramsPerSquareMetre"
minOccurs="1" maxOccurs="1" />
          <xs:element name="applicationRateValueExtension"
type="D2LogicalModel:_ExtensionType" minOccurs="0" />
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
</xs:schema>
```

```

    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="AxleFlowValue">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:DataValue">
      <xs:sequence>
        <xs:element name="axleFlowRate"
          type="D2LogicalModel:AxlesPerHour" minOccurs="1" maxOccurs="1" />
        <xs:element name="axleFlowValueExtension"
          type="D2LogicalModel:_ExtensionType" minOccurs="0" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:simpleType name="AxlesPerHour">
  <xs:restriction base="D2LogicalModel:NonNegativeInteger" />
</xs:simpleType>
<xs:simpleType name="Boolean">
  <xs:restriction base="xs:boolean" />
</xs:simpleType>
<xs:complexType name="Cause" abstract="true">
  <xs:sequence>
    <xs:element name="causeExtension"
      type="D2LogicalModel:_ExtensionType" minOccurs="0" />
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="CauseTypeEnum">
  <xs:restriction base="xs:string">
    <xs:enumeration value="accident" />
    <xs:enumeration value="congestion" />
    <xs:enumeration value="earlierAccident" />
    <xs:enumeration value="earlierEvent" />
    <xs:enumeration value="earlierIncident" />
    <xs:enumeration value="equipmentFailure" />
    <xs:enumeration value="excessiveHeat" />
    <xs:enumeration value="frost" />
    <xs:enumeration value="holidayTraffic" />
    <xs:enumeration value="infrastructureFailure" />
    <xs:enumeration value="largeNumbersOfVisitors" />
    <xs:enumeration value="obstruction" />
    <xs:enumeration value="pollutionAlert" />
    <xs:enumeration value="poorWeather" />
    <xs:enumeration value="problemsAtBorderPost" />
    <xs:enumeration value="problemsAtCustomPost" />
    <xs:enumeration value="problemsOnLocalRoads" />
    <xs:enumeration value="radioactiveLeakAlert" />
    <xs:enumeration value="roadsideEvent" />
    <xs:enumeration value="rubberNecking" />
    <xs:enumeration value="securityIncident" />
    <xs:enumeration value="shearWeightOfTraffic" />
    <xs:enumeration value="technicalProblems" />
    <xs:enumeration value="terrorism" />
    <xs:enumeration value="toxicCloudAlert" />
    <xs:enumeration value="vandalism" />
    <xs:enumeration value="other" />
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="Comment">
  <xs:sequence>
    <xs:element name="comment" type="D2LogicalModel:MultilingualString"
      minOccurs="1" maxOccurs="1" />
    <xs:element name="commentDateTime" type="D2LogicalModel:DateTime"

```

```

minOccurs="0" maxOccurs="1" />
<xs:element name="commentType" type="D2LogicalModel:CommentTypeEnum"
minOccurs="0" maxOccurs="1" />
<xs:element name="commentExtension"
type="D2LogicalModel:_ExtensionType" minOccurs="0" />
</xs:sequence>
</xs:complexType>
<xs:simpleType name="CommentTypeEnum">
<xs:restriction base="xs:string">
<xs:enumeration value="abnormalLoadMovementNote" />
<xs:enumeration value="dataProcessingNote" />
<xs:enumeration value="description" />
<xs:enumeration value="internalNote" />
<xs:enumeration value="locationDescriptor" />
<xs:enumeration value="warning" />
<xs:enumeration value="other" />
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="ComputationMethodEnum">
<xs:restriction base="xs:string">
<xs:enumeration value="arithmeticAverageOfSamplesBasedOnAFixedNumberOfSamples
↵" />
<xs:enumeration value="arithmeticAverageOfSamplesInATimePeriod" />
<xs:enumeration value="harmonicAverageOfSamplesInATimePeriod" />
<xs:enumeration value="medianOfSamplesInATimePeriod" />
<xs:enumeration value="movingAverageOfSamples" />
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="ConcentrationKilogramsPerCubicMetre">
<xs:restriction base="D2LogicalModel:Float" />
</xs:simpleType>
<xs:complexType name="ConcentrationOfVehiclesValue">
<xs:complexContent>
<xs:extension base="D2LogicalModel:DataValue">
<xs:sequence>
<xs:element name="concentrationOfVehicles"
type="D2LogicalModel:ConcentrationVehiclesPerKilometre"
minOccurs="1" maxOccurs="1" />
<xs:element name="concentrationOfVehiclesValueExtension"
type="D2LogicalModel:_ExtensionType" minOccurs="0" />
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:simpleType name="ConcentrationVehiclesPerKilometre">
<xs:restriction base="D2LogicalModel:NonNegativeInteger" />
</xs:simpleType>
<xs:complexType name="Conditions">
<xs:complexContent>
<xs:extension base="D2LogicalModel:TrafficElement">
<xs:sequence>
<xs:element name="drivingConditionType"
type="D2LogicalModel:DrivingConditionTypeEnum" minOccurs="0"
maxOccurs="1" />
<xs:element name="conditionsExtension"
type="D2LogicalModel:_ExtensionType" minOccurs="0" />
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:simpleType name="ConfidentialityValueEnum">
<xs:restriction base="xs:string">
<xs:enumeration value="internalUse" />

```



```

<xs:enumeration value="noRestriction" />
<xs:enumeration value="restrictedToAuthorities" />
<xs:enumeration value="restrictedToAuthoritiesAndTrafficOperators" />
<xs:enumeration value="restrictedToAuthoritiesTrafficOperatorsAndPublishers" />
↔ />
  <xs:enumeration value="restrictedToAuthoritiesTrafficOperatorsAndVms" />
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="CountryEnum">
  <xs:restriction base="xs:string">
    <xs:enumeration value="at" />
    <xs:enumeration value="be" />
    <xs:enumeration value="bg" />
    <xs:enumeration value="ch" />
    <xs:enumeration value="cs" />
    <xs:enumeration value="cy" />
    <xs:enumeration value="cz" />
    <xs:enumeration value="de" />
    <xs:enumeration value="dk" />
    <xs:enumeration value="ee" />
    <xs:enumeration value="es" />
    <xs:enumeration value="fi" />
    <xs:enumeration value="fo" />
    <xs:enumeration value="fr" />
    <xs:enumeration value="gb" />
    <xs:enumeration value="gg" />
    <xs:enumeration value="gi" />
    <xs:enumeration value="gr" />
    <xs:enumeration value="hr" />
    <xs:enumeration value="hu" />
    <xs:enumeration value="ie" />
    <xs:enumeration value="im" />
    <xs:enumeration value="is" />
    <xs:enumeration value="it" />
    <xs:enumeration value="je" />
    <xs:enumeration value="li" />
    <xs:enumeration value="lt" />
    <xs:enumeration value="lu" />
    <xs:enumeration value="lv" />
    <xs:enumeration value="ma" />
    <xs:enumeration value="mc" />
    <xs:enumeration value="mk" />
    <xs:enumeration value="mt" />
    <xs:enumeration value="nl" />
    <xs:enumeration value="no" />
    <xs:enumeration value="pl" />
    <xs:enumeration value="pt" />
    <xs:enumeration value="ro" />
    <xs:enumeration value="se" />
    <xs:enumeration value="si" />
    <xs:enumeration value="sk" />
    <xs:enumeration value="sm" />
    <xs:enumeration value="tr" />
    <xs:enumeration value="va" />
    <xs:enumeration value="other" />
  </xs:restriction>
</xs:simpleType>
<xs:element name="d2LogicalModel" type="D2LogicalModel:D2LogicalModel">
  <xs:unique name="_d2LogicalModelSituationRecordConstraint">
    <xs:selector xpath="//D2LogicalModel:situationRecord" />
    <xs:field xpath="@id" />
    <xs:field xpath="@version" />
  </xs:unique>

```

```

<xs:unique name="_d2LogicalModelSituationConstraint">
  <xs:selector xpath="//D2LogicalModel:situation" />
  <xs:field xpath="@id" />
  <xs:field xpath="@version" />
</xs:unique>
</xs:element>
<xs:complexType name="D2LogicalModel">
  <xs:sequence>
    <xs:element name="exchange" type="D2LogicalModel:Exchange" />
    <xs:element name="payloadPublication"
      type="D2LogicalModel:PayloadPublication" minOccurs="0" />
    <xs:element name="d2LogicalModelExtension"
      type="D2LogicalModel:_ExtensionType" minOccurs="0" />
  </xs:sequence>
  <xs:attribute name="modelBaseVersion" use="required" fixed="2" />
</xs:complexType>
<xs:complexType name="DataValue" abstract="true">
  <xs:sequence>
    <xs:element name="dataError" type="D2LogicalModel:Boolean"
      minOccurs="0" maxOccurs="1" />
    <xs:element name="reasonForDataError"
      type="D2LogicalModel:MultilingualString" minOccurs="0"
      maxOccurs="1" />
    <xs:element name="dataValueExtension"
      type="D2LogicalModel:_ExtensionType" minOccurs="0" />
  </xs:sequence>
  <xs:attribute name="accuracy" type="D2LogicalModel:Percentage"
    use="optional" />
  <xs:attribute name="computationalMethod"
    type="D2LogicalModel:ComputationMethodEnum" use="optional" />
  <xs:attribute name="numberOfIncompleteInputs"
    type="D2LogicalModel:NonNegativeInteger" use="optional" />
  <xs:attribute name="numberOfInputValuesUsed"
    type="D2LogicalModel:NonNegativeInteger" use="optional" />
  <xs:attribute name="smoothingFactor" type="D2LogicalModel:Float"
    use="optional" />
  <xs:attribute name="standardDeviation" type="D2LogicalModel:Float"
    use="optional" />
  <xs:attribute name="supplierCalculatedDataQuality"
    type="D2LogicalModel:Percentage" use="optional" />
</xs:complexType>
<xs:simpleType name="DateTime">
  <xs:restriction base="xs:dateTime" />
</xs:simpleType>
<xs:complexType name="DateTimeValue">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:DataValue">
      <xs:sequence>
        <xs:element name="dateTime" type="D2LogicalModel:DateTime"
          minOccurs="1" maxOccurs="1" />
        <xs:element name="dateTimeValueExtension"
          type="D2LogicalModel:_ExtensionType" minOccurs="0" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="DirectionBearingValue">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:DataValue">
      <xs:sequence>
        <xs:element name="directionBearing"
          type="D2LogicalModel:AngleInDegrees" minOccurs="1"
          maxOccurs="1" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

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```

        <xs:element name="directionBearingValueExtension"
            type="D2LogicalModel:_ExtensionType" minOccurs="0" />
    </xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:simpleType name="DirectionCompassEnum">
    <xs:restriction base="xs:string">
        <xs:enumeration value="east" />
        <xs:enumeration value="eastNorthEast" />
        <xs:enumeration value="eastSouthEast" />
        <xs:enumeration value="north" />
        <xs:enumeration value="northEast" />
        <xs:enumeration value="northNorthEast" />
        <xs:enumeration value="northNorthWest" />
        <xs:enumeration value="northWest" />
        <xs:enumeration value="south" />
        <xs:enumeration value="southEast" />
        <xs:enumeration value="southSouthEast" />
        <xs:enumeration value="southSouthWest" />
        <xs:enumeration value="southWest" />
        <xs:enumeration value="west" />
        <xs:enumeration value="westNorthWest" />
        <xs:enumeration value="westSouthWest" />
    </xs:restriction>
</xs:simpleType>
<xs:complexType name="DirectionCompassValue">
    <xs:complexContent>
        <xs:extension base="D2LogicalModel:DataValue">
            <xs:sequence>
                <xs:element name="directionCompass"
                    type="D2LogicalModel:DirectionCompassEnum" minOccurs="1"
                    maxOccurs="1" />
                <xs:element name="directionCompassValueExtension"
                    type="D2LogicalModel:_ExtensionType" minOccurs="0" />
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:simpleType name="DrivingConditionTypeEnum">
    <xs:restriction base="xs:string">
        <xs:enumeration value="impossible" />
        <xs:enumeration value="hazardous" />
        <xs:enumeration value="normal" />
        <xs:enumeration value="passableWithCare" />
        <xs:enumeration value="unknown" />
        <xs:enumeration value="veryHazardous" />
        <xs:enumeration value="winterConditions" />
        <xs:enumeration value="other" />
    </xs:restriction>
</xs:simpleType>
<xs:complexType name="ElaboratedDataFault">
    <xs:complexContent>
        <xs:extension base="D2LogicalModel:Fault">
            <xs:sequence>
                <xs:element name="elaboratedDataFault"
                    type="D2LogicalModel:ElaboratedDataFaultEnum" minOccurs="1"
                    maxOccurs="1" />
                <xs:element name="elaboratedDataFaultExtension"
                    type="D2LogicalModel:_ExtensionType" minOccurs="0" />
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>

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</xs:complexType>
<xs:simpleType name="ElaboratedDataFaultEnum">
  <xs:restriction base="xs:string">
    <xs:enumeration value="intermittentDataValues" />
    <xs:enumeration value="noDataValuesAvailable" />
    <xs:enumeration value="spuriousUnreliableDataValues" />
    <xs:enumeration value="unspecifiedOrUnknownFault" />
    <xs:enumeration value="other" />
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="Exchange">
  <xs:sequence>
    <xs:element name="supplierIdentification"
      type="D2LogicalModel:InternationalIdentifier" />
    <xs:element name="exchangeExtension"
      type="D2LogicalModel:_ExtensionType" minOccurs="0" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="Fault">
  <xs:sequence>
    <xs:element name="faultIdentifier" type="D2LogicalModel:String"
      minOccurs="0" maxOccurs="1" />
    <xs:element name="faultDescription" type="D2LogicalModel:String"
      minOccurs="0" maxOccurs="1" />
    <xs:element name="faultCreationTime" type="D2LogicalModel:DateTime"
      minOccurs="0" maxOccurs="1" />
    <xs:element name="faultLastUpdateTime" type="D2LogicalModel:DateTime"
      minOccurs="1" maxOccurs="1" />
    <xs:element name="faultSeverity"
      type="D2LogicalModel:FaultSeverityEnum" minOccurs="0"
      maxOccurs="1" />
    <xs:element name="faultExtension"
      type="D2LogicalModel:_ExtensionType" minOccurs="0" />
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="FaultSeverityEnum">
  <xs:restriction base="xs:string">
    <xs:enumeration value="low" />
    <xs:enumeration value="medium" />
    <xs:enumeration value="high" />
    <xs:enumeration value="unknown" />
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="Float">
  <xs:restriction base="xs:float" />
</xs:simpleType>
<xs:complexType name="FloatingPointMetreDistanceValue">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:DataValue">
      <xs:sequence>
        <xs:element name="floatingPointMetreDistance"
          type="D2LogicalModel:MetresAsFloat" minOccurs="1"
          maxOccurs="1" />
        <xs:element name="floatingPointMetreDistanceValueExtension"
          type="D2LogicalModel:_ExtensionType" minOccurs="0" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="GroupOfLocations" abstract="true">
  <xs:sequence>
    <xs:element name="groupOfLocationsExtension"
      type="D2LogicalModel:_ExtensionType" minOccurs="0" />
  </xs:sequence>
</xs:complexType>

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```

</xs:sequence>
</xs:complexType>
<xs:complexType name="HeaderInformation">
  <xs:sequence>
    <xs:element name="confidentiality"
      type="D2LogicalModel:ConfidentialityValueEnum" minOccurs="1"
      maxOccurs="1" />
    <xs:element name="informationStatus"
      type="D2LogicalModel:InformationStatusEnum" minOccurs="1"
      maxOccurs="1" />
    <xs:element name="urgency" type="D2LogicalModel:UrgencyEnum"
      minOccurs="0" maxOccurs="1" />
    <xs:element name="headerInformationExtension"
      type="D2LogicalModel:_ExtensionType" minOccurs="0" />
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="InformationStatusEnum">
  <xs:restriction base="xs:string">
    <xs:enumeration value="real" />
    <xs:enumeration value="securityExercise" />
    <xs:enumeration value="technicalExercise" />
    <xs:enumeration value="test" />
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="Integer">
  <xs:restriction base="xs:integer" />
</xs:simpleType>
<xs:complexType name="IntegerMetreDistanceValue">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:DataValue">
      <xs:sequence>
        <xs:element name="integerMetreDistance"
          type="D2LogicalModel:MetresAsNonNegativeInteger" minOccurs="1"
          maxOccurs="1" />
        <xs:element name="integerMetreDistanceValueExtension"
          type="D2LogicalModel:_ExtensionType" minOccurs="0" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:simpleType name="IntensityKilogramsPerSquareMetre">
  <xs:restriction base="D2LogicalModel:Float" />
</xs:simpleType>
<xs:simpleType name="IntensityMillimetresPerHour">
  <xs:restriction base="D2LogicalModel:Float" />
</xs:simpleType>
<xs:complexType name="InternationalIdentifier">
  <xs:sequence>
    <xs:element name="country" type="D2LogicalModel:CountryEnum"
      minOccurs="1" maxOccurs="1" />
    <xs:element name="nationalIdentifier" type="D2LogicalModel:String"
      minOccurs="1" maxOccurs="1" />
    <xs:element name="internationalIdentifierExtension"
      type="D2LogicalModel:_ExtensionType" minOccurs="0" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="KilogramsConcentrationValue">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:DataValue">
      <xs:sequence>
        <xs:element name="kilogramsConcentration"
          type="D2LogicalModel:ConcentrationKilogramsPerCubicMetre"
          minOccurs="1" maxOccurs="1" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

```

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        <xs:element name="kilogramsConcentrationValueExtension"
            type="D2LogicalModel:_ExtensionType" minOccurs="0" />
    </xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:simpleType name="KilometresPerHour">
    <xs:restriction base="D2LogicalModel:Float" />
</xs:simpleType>
<xs:simpleType name="Language">
    <xs:restriction base="xs:language" />
</xs:simpleType>
<xs:complexType name="Location" abstract="true">
    <xs:complexContent>
        <xs:extension base="D2LogicalModel:GroupOfLocations">
            <xs:sequence>
                <xs:element name="locationExtension"
                    type="D2LogicalModel:_ExtensionType" minOccurs="0" />
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="LocationByReference">
    <xs:complexContent>
        <xs:extension base="D2LogicalModel:Location">
            <xs:sequence>
                <xs:element name="predefinedLocationReference"
                    type="D2LogicalModel:_PredefinedLocationVersionedReference"
                    minOccurs="1" maxOccurs="1" />
                <xs:element name="locationByReferenceExtension"
                    type="D2LogicalModel:_ExtensionType" minOccurs="0" />
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="MeasurementEquipmentFault">
    <xs:complexContent>
        <xs:extension base="D2LogicalModel:Fault">
            <xs:sequence>
                <xs:element name="measurementEquipmentFault"
                    type="D2LogicalModel:MeasurementEquipmentFaultEnum" minOccurs="1"
                    maxOccurs="1" />
                <xs:element name="measurementEquipmentFaultExtension"
                    type="D2LogicalModel:_ExtensionType" minOccurs="0" />
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:simpleType name="MeasurementEquipmentFaultEnum">
    <xs:restriction base="xs:string">
        <xs:enumeration value="intermittentDataValues" />
        <xs:enumeration value="noDataValuesAvailable" />
        <xs:enumeration value="spuriousUnreliableDataValues" />
        <xs:enumeration value="unspecifiedOrUnknownFault" />
        <xs:enumeration value="other" />
    </xs:restriction>
</xs:simpleType>
<xs:simpleType name="MetresAsFloat">
    <xs:restriction base="D2LogicalModel:Float" />
</xs:simpleType>
<xs:simpleType name="MetresAsNonNegativeInteger">
    <xs:restriction base="D2LogicalModel:NonNegativeInteger" />
</xs:simpleType>

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<xs:complexType name="MultilingualString">
  <xs:sequence>
    <xs:element name="values">
      <xs:complexType>
        <xs:sequence>
          <xs:element name="value"
            type="D2LogicalModel:MultilingualStringValue"
            maxOccurs="unbounded" />
        </xs:sequence>
      </xs:complexType>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="MultilingualStringValue">
  <xs:simpleContent>
    <xs:extension base="D2LogicalModel:MultilingualStringValueType">
      <xs:attribute name="lang" type="xs:language" />
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
<xs:simpleType name="MultilingualStringValueType">
  <xs:restriction base="xs:string">
    <xs:maxLength value="1024" />
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="NonManagedCause">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:Cause">
      <xs:sequence>
        <xs:element name="causeType" type="D2LogicalModel:CauseTypeEnum"
          minOccurs="0" maxOccurs="1" />
        <xs:element name="nonManagedCauseExtension"
          type="D2LogicalModel:_ExtensionType" minOccurs="0" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:simpleType name="NonNegativeInteger">
  <xs:restriction base="xs:nonNegativeInteger" />
</xs:simpleType>
<xs:complexType name="NonWeatherRelatedRoadConditions">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:RoadConditions">
      <xs:sequence>
        <xs:element name="nonWeatherRelatedRoadConditionType"
          type="D2LogicalModel:NonWeatherRelatedRoadConditionTypeEnum"
          minOccurs="1" maxOccurs="unbounded" />
        <xs:element name="nonWeatherRelatedRoadConditionsExtension"
          type="D2LogicalModel:_ExtensionType" minOccurs="0" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:simpleType name="NonWeatherRelatedRoadConditionTypeEnum">
  <xs:restriction base="xs:string">
    <xs:enumeration value="dieselOnRoad" />
    <xs:enumeration value="leavesOnRoad" />
    <xs:enumeration value="looseChippings" />
    <xs:enumeration value="looseSandOnRoad" />
    <xs:enumeration value="mudOnRoad" />
    <xs:enumeration value="oilOnRoad" />
    <xs:enumeration value="petrolOnRoad" />
    <xs:enumeration value="roadSurfaceInPoorCondition" />
  </xs:restriction>
</xs:simpleType>

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    <xs:enumeration value="slipperyRoad" />
    <xs:enumeration value="other" />
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="OccupancyChangeValue">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:DataValue">
      <xs:sequence>
        <xs:element name="occupancyChange" type="D2LogicalModel:Integer"
          minOccurs="1" maxOccurs="1" />
        <xs:element name="occupancyChangeValueExtension"
          type="D2LogicalModel:_ExtensionType" minOccurs="0" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="OverallPeriod">
  <xs:sequence>
    <xs:element name="overallStartTime" type="D2LogicalModel:DateTime"
      minOccurs="1" maxOccurs="1" />
    <xs:element name="overallEndTime" type="D2LogicalModel:DateTime"
      minOccurs="0" maxOccurs="1" />
    <xs:element name="overallPeriodExtension"
      type="D2LogicalModel:_ExtensionType" minOccurs="0" />
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="PassengerCarUnitsPerHour">
  <xs:restriction base="D2LogicalModel:NonNegativeInteger" />
</xs:simpleType>
<xs:complexType name="PayloadPublication" abstract="true">
  <xs:sequence>
    <xs:element name="publicationTime" type="D2LogicalModel:DateTime"
      minOccurs="1" maxOccurs="1" />
    <xs:element name="publicationCreator"
      type="D2LogicalModel:InternationalIdentifier" />
    <xs:element name="payloadPublicationExtension"
      type="D2LogicalModel:_ExtensionType" minOccurs="0" />
  </xs:sequence>
  <xs:attribute name="lang" type="D2LogicalModel:Language"
    use="required" />
</xs:complexType>
<xs:complexType name="PcuFlowValue">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:DataValue">
      <xs:sequence>
        <xs:element name="pcuFlowRate"
          type="D2LogicalModel:PassengerCarUnitsPerHour" minOccurs="1"
          maxOccurs="1" />
        <xs:element name="pcuFlowValueExtension"
          type="D2LogicalModel:_ExtensionType" minOccurs="0" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:simpleType name="Percentage">
  <xs:restriction base="D2LogicalModel:Float" />
</xs:simpleType>
<xs:complexType name="PoorEnvironmentConditions">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:Conditions">
      <xs:sequence>
        <xs:element name="poorEnvironmentType"
          type="D2LogicalModel:PoorEnvironmentTypeEnum" minOccurs="1"

```



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maxOccurs="unbounded" />
<xs:element name="precipitationDetail"
type="D2LogicalModel:PrecipitationDetail" minOccurs="0" />
<xs:element name="visibility" type="D2LogicalModel:Visibility"
minOccurs="0" />
<xs:element name="temperature" type="D2LogicalModel:Temperature"
minOccurs="0" />
<xs:element name="wind" type="D2LogicalModel:Wind"
minOccurs="0" />
<xs:element name="poorEnvironmentConditionsExtension"
type="D2LogicalModel:_ExtensionType" minOccurs="0" />
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:simpleType name="PoorEnvironmentTypeEnum">
<xs:restriction base="xs:string">
<xs:enumeration value="badWeather" />
<xs:enumeration value="blizzard" />
<xs:enumeration value="blowingDust" />
<xs:enumeration value="blowingSnow" />
<xs:enumeration value="crosswinds" />
<xs:enumeration value="damagingHail" />
<xs:enumeration value="denseFog" />
<xs:enumeration value="eclipse" />
<xs:enumeration value="extremeCold" />
<xs:enumeration value="extremeHeat" />
<xs:enumeration value="fog" />
<xs:enumeration value="freezingFog" />
<xs:enumeration value="frost" />
<xs:enumeration value="gales" />
<xs:enumeration value="gustyWinds" />
<xs:enumeration value="hail" />
<xs:enumeration value="heavyFrost" />
<xs:enumeration value="heavyRain" />
<xs:enumeration value="heavySnowfall" />
<xs:enumeration value="hurricaneForceWinds" />
<xs:enumeration value="lowSunGlare" />
<xs:enumeration value="moderateFog" />
<xs:enumeration value="ozonePollution" />
<xs:enumeration value="pollution" />
<xs:enumeration value="patchyFog" />
<xs:enumeration value="precipitationInTheArea" />
<xs:enumeration value="rain" />
<xs:enumeration value="rainChangingToSnow" />
<xs:enumeration value="sandStorms" />
<xs:enumeration value="severeExhaustPollution" />
<xs:enumeration value="severeSmog" />
<xs:enumeration value="showers" />
<xs:enumeration value="sleet" />
<xs:enumeration value="smogAlert" />
<xs:enumeration value="smokeHazard" />
<xs:enumeration value="snowChangingToRain" />
<xs:enumeration value="snowfall" />
<xs:enumeration value="sprayHazard" />
<xs:enumeration value="stormForceWinds" />
<xs:enumeration value="strongGustsOfWind" />
<xs:enumeration value="strongWinds" />
<xs:enumeration value="swarmsOfInsects" />
<xs:enumeration value="temperatureFalling" />
<xs:enumeration value="thunderstorms" />
<xs:enumeration value="tornadoes" />
<xs:enumeration value="veryStrongGustsOfWind" />

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    <xs:enumeration value="visibilityReduced" />
    <xs:enumeration value="whiteOut" />
    <xs:enumeration value="winterStorm" />
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="PrecipitationDetail">
  <xs:sequence>
    <xs:element name="precipitationType"
      type="D2LogicalModel:PrecipitationTypeEnum" minOccurs="0"
      maxOccurs="1" />
    <xs:element name="precipitationIntensity"
      type="D2LogicalModel:PrecipitationIntensityValue" minOccurs="0" />
    <xs:element name="depositionDepth"
      type="D2LogicalModel:FloatingPointMetreDistanceValue"
      minOccurs="0" />
    <xs:element name="precipitationDetailExtension"
      type="D2LogicalModel:_ExtensionType" minOccurs="0" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="PrecipitationIntensityValue">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:DataValue">
      <xs:sequence>
        <xs:element name="millimetresPerHourIntensity"
          type="D2LogicalModel:IntensityMillimetresPerHour" minOccurs="1"
          maxOccurs="1" />
        <xs:element name="precipitationIntensityValueExtension"
          type="D2LogicalModel:_ExtensionType" minOccurs="0" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:simpleType name="PrecipitationTypeEnum">
  <xs:restriction base="xs:string">
    <xs:enumeration value="drizzle" />
    <xs:enumeration value="freezingRain" />
    <xs:enumeration value="hail" />
    <xs:enumeration value="rain" />
    <xs:enumeration value="sleet" />
    <xs:enumeration value="snow" />
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="ProbabilityOfOccurrenceEnum">
  <xs:restriction base="xs:string">
    <xs:enumeration value="certain" />
    <xs:enumeration value="probable" />
    <xs:enumeration value="riskOf" />
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="RoadConditions" abstract="true">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:Conditions">
      <xs:sequence>
        <xs:element name="roadConditionsExtension"
          type="D2LogicalModel:_ExtensionType" minOccurs="0" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="RoadSurfaceConditionMeasurements">
  <xs:sequence>
    <xs:element name="roadSurfaceTemperature"
      type="D2LogicalModel:TemperatureValue" minOccurs="0" />
  </xs:sequence>

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<xs:element name="protectionTemperature"
type="D2LogicalModel:TemperatureValue" minOccurs="0" />
<xs:element name="deIcingApplicationRate"
type="D2LogicalModel:ApplicationRateValue" minOccurs="0" />
<xs:element name="deIcingConcentration"
type="D2LogicalModel:KilogramsConcentrationValue" minOccurs="0" />
<xs:element name="depthOfSnow"
type="D2LogicalModel:FloatingPointMetreDistanceValue"
minOccurs="0" />
<xs:element name="waterFilmThickness"
type="D2LogicalModel:FloatingPointMetreDistanceValue"
minOccurs="0" />
<xs:element name="roadSurfaceConditionMeasurementsExtension"
type="D2LogicalModel:_ExtensionType" minOccurs="0" />
</xs:sequence>
</xs:complexType>
<xs:complexType name="Situation">
<xs:sequence>
<xs:element name="situationVersionTime"
type="D2LogicalModel:DateTime" minOccurs="0" maxOccurs="1" />
<xs:element name="headerInformation"
type="D2LogicalModel:HeaderInformation" />
<xs:element name="situationRecord"
type="D2LogicalModel:SituationRecord" maxOccurs="unbounded" />
<xs:element name="situationExtension"
type="D2LogicalModel:_ExtensionType" minOccurs="0" />
</xs:sequence>
<xs:attribute name="id" type="xs:string" use="required" />
<xs:attribute name="version" type="xs:string" use="required" />
</xs:complexType>
<xs:complexType name="SituationPublication">
<xs:complexContent>
<xs:extension base="D2LogicalModel:PayloadPublication">
<xs:sequence>
<xs:element name="situation" type="D2LogicalModel:Situation"
minOccurs="0" maxOccurs="unbounded" />
<xs:element name="situationPublicationExtension"
type="D2LogicalModel:_ExtensionType" minOccurs="0" />
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:complexType name="SituationRecord" abstract="true">
<xs:sequence>
<xs:element name="situationRecordCreationTime"
type="D2LogicalModel:DateTime" minOccurs="1" maxOccurs="1" />
<xs:element name="situationRecordVersionTime"
type="D2LogicalModel:DateTime" minOccurs="1" maxOccurs="1" />
<xs:element name="probabilityOfOccurrence"
type="D2LogicalModel:ProbabilityOfOccurrenceEnum" minOccurs="1"
maxOccurs="1" />
<xs:element name="source" type="D2LogicalModel:Source"
minOccurs="0" />
<xs:element name="validity" type="D2LogicalModel:Validity" />
<xs:element name="cause" type="D2LogicalModel:Cause" minOccurs="0" />
<xs:element name="generalPublicComment" type="D2LogicalModel:Comment"
minOccurs="0" maxOccurs="unbounded" />
<xs:element name="groupOfLocations"
type="D2LogicalModel:GroupOfLocations" />
<xs:element name="situationRecordExtension"
type="D2LogicalModel:_ExtensionType" minOccurs="0" />
</xs:sequence>
<xs:attribute name="id" type="xs:string" use="required" />

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    <xs:attribute name="version" type="xs:string" use="required" />
  </xs:complexType>
  <xs:complexType name="Source">
    <xs:sequence>
      <xs:element name="sourceCountry" type="D2LogicalModel:CountryEnum"
        minOccurs="0" maxOccurs="1" />
      <xs:element name="sourceIdentification" type="D2LogicalModel:String"
        minOccurs="0" maxOccurs="1" />
      <xs:element name="sourceName"
        type="D2LogicalModel:MultilingualString" minOccurs="0"
        maxOccurs="1" />
      <xs:element name="sourceType" type="D2LogicalModel:SourceTypeEnum"
        minOccurs="0" maxOccurs="1" />
      <xs:element name="reliable" type="D2LogicalModel:Boolean"
        minOccurs="0" maxOccurs="1" />
      <xs:element name="sourceExtension"
        type="D2LogicalModel:_ExtensionType" minOccurs="0" />
    </xs:sequence>
  </xs:complexType>
  <xs:simpleType name="SourceTypeEnum">
    <xs:restriction base="xs:string">
      <xs:enumeration value="automobileClubPatrol" />
      <xs:enumeration value="cameraObservation" />
      <xs:enumeration value="freightVehicleOperator" />
      <xs:enumeration value="inductionLoopMonitoringStation" />
      <xs:enumeration value="infraredMonitoringStation" />
      <xs:enumeration value="microwaveMonitoringStation" />
      <xs:enumeration value="mobileTelephoneCaller" />
      <xs:enumeration value="nonPoliceEmergencyServicePatrol" />
      <xs:enumeration value="otherInformation" />
      <xs:enumeration value="otherOfficialVehicle" />
      <xs:enumeration value="policePatrol" />
      <xs:enumeration value="privateBreakdownService" />
      <xs:enumeration value="publicAndPrivateUtilities" />
      <xs:enumeration value="registeredMotoristObserver" />
      <xs:enumeration value="roadAuthorities" />
      <xs:enumeration value="roadOperatorPatrol" />
      <xs:enumeration value="roadsideTelephoneCaller" />
      <xs:enumeration value="spotterAircraft" />
      <xs:enumeration value="trafficMonitoringStation" />
      <xs:enumeration value="transitOperator" />
      <xs:enumeration value="vehicleProbeMeasurement" />
      <xs:enumeration value="videoProcessingMonitoringStation" />
    </xs:restriction>
  </xs:simpleType>
  <xs:complexType name="SpeedValue">
    <xs:complexContent>
      <xs:extension base="D2LogicalModel:DataValue">
        <xs:sequence>
          <xs:element name="speed" type="D2LogicalModel:KilometresPerHour"
            minOccurs="1" maxOccurs="1" />
          <xs:element name="speedValueExtension"
            type="D2LogicalModel:_ExtensionType" minOccurs="0" />
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:simpleType name="String">
    <xs:restriction base="xs:string">
      <xs:maxLength value="1024" />
    </xs:restriction>
  </xs:simpleType>
  <xs:complexType name="Temperature">

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<xs:sequence>
  <xs:element name="airTemperature"
    type="D2LogicalModel:TemperatureValue" minOccurs="0" />
  <xs:element name="dewPointTemperature"
    type="D2LogicalModel:TemperatureValue" minOccurs="0" />
  <xs:element name="maximumTemperature"
    type="D2LogicalModel:TemperatureValue" minOccurs="0" />
  <xs:element name="minimumTemperature"
    type="D2LogicalModel:TemperatureValue" minOccurs="0" />
  <xs:element name="temperatureExtension"
    type="D2LogicalModel:_ExtensionType" minOccurs="0" />
</xs:sequence>
</xs:complexType>
<xs:simpleType name="TemperatureCelsius">
  <xs:restriction base="D2LogicalModel:Float" />
</xs:simpleType>
<xs:complexType name="TemperatureValue">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:DataValue">
      <xs:sequence>
        <xs:element name="temperature"
          type="D2LogicalModel:TemperatureCelsius" minOccurs="1"
          maxOccurs="1" />
        <xs:element name="temperatureValueExtension"
          type="D2LogicalModel:_ExtensionType" minOccurs="0" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="TrafficElement" abstract="true">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:SituationRecord">
      <xs:sequence>
        <xs:element name="trafficElementExtension"
          type="D2LogicalModel:_ExtensionType" minOccurs="0" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:simpleType name="TrafficStatusEnum">
  <xs:restriction base="xs:string">
    <xs:enumeration value="impossible" />
    <xs:enumeration value="congested" />
    <xs:enumeration value="heavy" />
    <xs:enumeration value="freeFlow" />
    <xs:enumeration value="unknown" />
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="TrafficStatusValue">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:DataValue">
      <xs:sequence>
        <xs:element name="trafficStatusValue"
          type="D2LogicalModel:TrafficStatusEnum" minOccurs="1"
          maxOccurs="1" />
        <xs:element name="trafficStatusValueExtension"
          type="D2LogicalModel:_ExtensionType" minOccurs="0" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:simpleType name="UrgencyEnum">
  <xs:restriction base="xs:string">

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    <xs:enumeration value="extremelyUrgent" />
    <xs:enumeration value="urgent" />
    <xs:enumeration value="normalUrgency" />
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="Validity">
  <xs:sequence>
    <xs:element name="validityStatus"
      type="D2LogicalModel:ValidityStatusEnum" minOccurs="1"
      maxOccurs="1" />
    <xs:element name="validityTimeSpecification"
      type="D2LogicalModel:OverallPeriod" />
    <xs:element name="validityExtension"
      type="D2LogicalModel:_ExtensionType" minOccurs="0" />
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="ValidityStatusEnum">
  <xs:restriction base="xs:string">
    <xs:enumeration value="active" />
    <xs:enumeration value="suspended" />
    <xs:enumeration value="definedByValidityTimeSpec" />
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="VehicleCountValue">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:DataValue">
      <xs:sequence>
        <xs:element name="vehicleCount"
          type="D2LogicalModel:NonNegativeInteger" minOccurs="1"
          maxOccurs="1" />
        <xs:element name="vehicleCountValueExtension"
          type="D2LogicalModel:_ExtensionType" minOccurs="0" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="VehicleFlowValue">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:DataValue">
      <xs:sequence>
        <xs:element name="vehicleFlowRate"
          type="D2LogicalModel:VehiclesPerHour" minOccurs="1"
          maxOccurs="1" />
        <xs:element name="vehicleFlowValueExtension"
          type="D2LogicalModel:_ExtensionType" minOccurs="0" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:simpleType name="VehiclesPerHour">
  <xs:restriction base="D2LogicalModel:NonNegativeInteger" />
</xs:simpleType>
<xs:complexType name="VersionedReference">
  <xs:attribute name="id" type="xs:string" use="required" />
  <xs:attribute name="version" type="xs:string" use="required" />
</xs:complexType>
<xs:complexType name="Visibility">
  <xs:sequence>
    <xs:element name="minimumVisibilityDistance"
      type="D2LogicalModel:IntegerMetreDistanceValue" />
    <xs:element name="visibilityExtension"
      type="D2LogicalModel:_ExtensionType" minOccurs="0" />
  </xs:sequence>

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</xs:complexType>
<xs:complexType name="WeatherRelatedRoadConditions">
  <xs:complexContent>
    <xs:extension base="D2LogicalModel:RoadConditions">
      <xs:sequence>
        <xs:element name="weatherRelatedRoadConditionType"
          type="D2LogicalModel:WeatherRelatedRoadConditionTypeEnum"
          minOccurs="1" maxOccurs="unbounded" />
        <xs:element name="roadSurfaceConditionMeasurements"
          type="D2LogicalModel:RoadSurfaceConditionMeasurements"
          minOccurs="0" />
        <xs:element name="weatherRelatedRoadConditionsExtension"
          type="D2LogicalModel:_ExtensionType" minOccurs="0" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:simpleType name="WeatherRelatedRoadConditionTypeEnum">
  <xs:restriction base="xs:string">
    <xs:enumeration value="blackIce" />
    <xs:enumeration value="deepSnow" />
    <xs:enumeration value="dry" />
    <xs:enumeration value="freezingOfWetRoads" />
    <xs:enumeration value="freezingPavements" />
    <xs:enumeration value="freezingRain" />
    <xs:enumeration value="freshSnow" />
    <xs:enumeration value="ice" />
    <xs:enumeration value="iceBuildUp" />
    <xs:enumeration value="iceWithWheelBarTracks" />
    <xs:enumeration value="icyPatches" />
    <xs:enumeration value="looseSnow" />
    <xs:enumeration value="normalWinterConditionsForPedestrians" />
    <xs:enumeration value="packedSnow" />
    <xs:enumeration value="roadSurfaceMelting" />
    <xs:enumeration value="slipperyRoad" />
    <xs:enumeration value="slushOnRoad" />
    <xs:enumeration value="slushStrings" />
    <xs:enumeration value="snowDrifts" />
    <xs:enumeration value="snowOnPavement" />
    <xs:enumeration value="snowOnTheRoad" />
    <xs:enumeration value="surfaceWater" />
    <xs:enumeration value="wet" />
    <xs:enumeration value="wetAndIcyRoad" />
    <xs:enumeration value="wetIcyPavement" />
    <xs:enumeration value="other" />
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="Wind">
  <xs:sequence>
    <xs:element name="windMeasurementHeight"
      type="D2LogicalModel:MetresAsNonNegativeInteger" minOccurs="0"
      maxOccurs="1" />
    <xs:element name="windSpeed" type="D2LogicalModel:SpeedValue"
      minOccurs="0" />
    <xs:element name="maximumWindSpeed" type="D2LogicalModel:SpeedValue"
      minOccurs="0" />
    <xs:element name="windDirectionBearing"
      type="D2LogicalModel:DirectionBearingValue" minOccurs="0" />
    <xs:element name="windDirectionCompass"
      type="D2LogicalModel:DirectionCompassValue" minOccurs="0" />
    <xs:element name="windExtension" type="D2LogicalModel:_ExtensionType"
      minOccurs="0" />
  </xs:sequence>

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</xs:complexType>  
</xs:schema>
```



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## Bibliography

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- [16157-5] CEN TS 16157-5: Intelligent transport systems - DATEX II data exchange specifications for traffic management and information - Part 5: Measured and elaborated data publications
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