

## 4.1.2 Motorway network

### 4.1.2.1 Identification

Name : Motorway network  
Identifier : ViaNova.Dbdd.ConceptualSchema.MotorwayNetwork

### 4.1.2.2 Description

In this schema a road network is described as network of carriageway.

The network of carriageways is modelled as a non-planar directed graph. See the schema Road network Geometry.

A carriageway element consists of a list parallel lane elements numbered from the inside out.

A carriageway element may be part of a motorway element or motorway junction.

### 4.1.2.3 Conceptual schema

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```
SCHEMA MOTORWAYNETWORK;  
  
REFERENCE FROM ROADNETWORKGEOMETRY  
  (TerminatingNode,  
   Edge,  
   IntermediateNode,  
   Route,  
   Segment);  
  
REFERENCE FROM CARRIAGEWAYNETWORK  
  (CwElement);  
  
ENTITY MwJunction  
  SUBTYPE OF(TerminatingNode, MwElementOrJunction);  
  name : STRING;  
END_ENTITY;  
  
ENTITY MwElementOrJunction  
  ABSTRACT SUPERTYPE OF (ONEOF(MwElement, MwJunction));  
  consistsOf : SET [1:?] OF CwElement;  
END_ENTITY;  
  
ENTITY MwElement  
  SUBTYPE OF(Edge, MwElementOrJunction);  
  SELF\Edge.endsAt : MwJunction;  
  SELF\Edge.startsAt : MwJunction;  
  SELF\Edge.continuingEdge : OPTIONAL MwElement;  
END_ENTITY;  
  
ENTITY MwIntermediateNode  
  SUBTYPE OF(IntermediateNode);  
  SELF\IntermediateNode.isCoincidentWith : MwElement;  
END_ENTITY;  
  
ENTITY MwRoute  
  SUBTYPE OF(Route);  
  SELF\Route.endsAt : MwIntermediateNode;  
  SELF\Route.startsAt : MwIntermediateNode;  
  SELF\Route.alongEdges : LIST [1:?] OF MwElement;  
END_ENTITY;  
  
ENTITY MwSegment  
  SUBTYPE OF(Segment, MwRoute);  
END_ENTITY;  
  
END_SCHEMA;
```

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#### 4.1.2.4 Entity descriptions

The various entities together with some auxiliary definitions are described below.

##### **Motorway element**

An edge between two nodes (motorway junctions) in a motorway network.

##### **Motorway element or junction**

The supertype of motorway element and motorway junction.

##### **Motorway Intermediate Node**

A node on an edge (motorway element) in a motorway network.

##### **Motorway junction**

A node in a motorway network at which one or more edges (motorway elements) start or end.

##### **Motorway route**

A route through a motorway network. A route may encompass one or more motorway elements and starts and ends with an intermediate node on the first and last element respectively.

##### **Motorway segment**

A route through a motorway network where each next motorway element is the continuing element of its predecessor.

#### 4.1.2.5 Type descriptions

The various types together with some auxiliary definitions are described below.

#### 4.1.2.6 Integrity constraints

This schema is based on constraints specified in RoadNetworkGeometry.

#### 4.1.2.7 Other security aspects

There are no additional security requirements

#### 4.1.2.8 Performance aspects

There are no additional performance requirements

#### 4.1.2.9 Implementation aspects

There are no additional implementation requirements.

#### 4.1.2.10 Abbreviations

Cw	Carriageway
Ln	Lane
Mw	Motorway

#### 4.1.2.11 References

See section 2 for a complete reference description.

[...] ...

